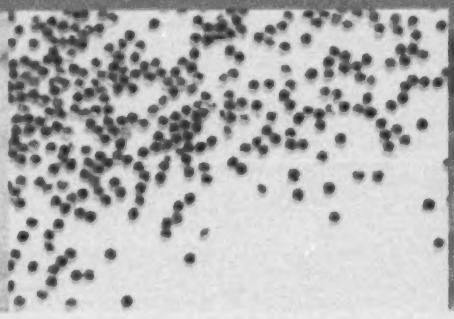
Small Things Matter

Annual Report 2014/2015



Environmental Commissioner of Ontario

Landscape is the texture of intricacy. ...A bird's feather is an intricacy; the bird is a form; the bird in space in relation to air, forest, continent, and so on, is a thread in a texture.

— Annie Dillard

Environmental
Commissioner
of Ontario

Commissaire à
l'environnement
de l'Ontario

November 2015

The Honourable Speaker
of the Legislative Assembly of Ontario

Room 180, Legislative Building
Legislative Assembly
Province of Ontario
Queen's Park

Dear Speaker:

In accordance with Section 58 of the *Environmental Bill of Rights, 1993*, I am pleased to present the 2014/2015 Annual Report of the Environmental Commissioner of Ontario for your submission to the Legislative Assembly of Ontario.

Sincerely,

Ellen Schwartzel

Environmental Commissioner of Ontario

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Small Things Matter

Small things matter: an odd title, you might think, for a hefty report that covers a vast terrain. But small things loom large in the following pages, as you will see.

This report tries to capture how well Ontario is protecting its great expanses of landscapes, its renowned biodiversity and its wealth of waterways – an annual snapshot, is one way to think of it. Of course, a single snapshot can't do justice to a complex landscape. And the policy landscape of environmental protection in Ontario has evolved a highly complex texture, patterned by successive waves of legal reforms and shifting priorities. One feature does remain constant over time; under Canada's division of powers, provincial governments are assigned a very big role on environmental protection.

In Ontario, over a dozen provincial ministries are the joint stewards of air, water, land, animals, plants and minerals – pretty much everything out there. Their job is huge. The job of our office – the Environmental Commissioner – is to keep a fair and watchful eye on their stewardship, and to flag concerns for Ontario's legislators and the public at large. Each year, our Annual Report offers samplings of how well ministries are meeting their environmental responsibilities; how they protect species, how they prevent pollution, and how they enforce environmental rules. The report in fact is a whole collage of snapshots, a multitude of close-ups and sketches that together give a sense of that stewardship in progress. So I invite you to simply dip in, and sample at will. Select a small image or the thread of an idea here or there. See where it connects in the larger texture. See what questions arise for you.

Consider, for example, in part 2.5 of this report, the fate of a migrating songbird. A trivial fluff of feathers, when it collides with an office tower. When millions of birds are killed by windows and preventative remedies are not enforced, is it still a triviality? Or consider the negligibly tiny flecks of plastic described in part 3.2, floating in Lake Ontario. Now that government surveys have found over six million bits of plastic per square kilometre in that lake, is "negligible" still the right word?

You might also glance at certain laughably small expenditures in the provincial budget highlighted in part 4.4; such as the $6,263 spent on acquiring provincial parkland last year. When the Ontario government no longer has a fund for land purchase to protect vulnerable natural heritage, is it still a laughing matter? Or reflect (part 3.3) on the pittance that the province recovers from water takings per year; a mere 1.2 per cent of what the Ontario government actually spends annually on managing water quantity. What happens when we fail to adequately value a public resource like water?

In a complex policy landscape, bright spots are important too; part 3.5 offers a snapshot of the Experimental Lakes Area, and the vital ecological research this institute excels at. Despite losing federal funding, its work can continue, thanks to the Ontario government's decision to step in with support. Another bright spot focuses on the Ontario government's changes to its list of "noxious weeds"; these changes, in part 5.5, mean Ontarians are now allowed to grow milkweed, critical for the declining monarch butterfly. And how encouraging that 1,100 Ontarians spoke up about milkweed via the Environmental Registry – a seemingly small matter, with large implications.

The Environmental Registry itself is only a small wheel in the overall machinery of government, and yet Ontarians' environmental rights depend on it. Unfortunately, the Registry's IT platform has become a creaky antique. Learn why it needs an overhaul in part 1.2.1.

There you have the briefest introduction to this collage of snapshots – this assemblage of "small things" that matter greatly to the environment. I encourage you to explore further for yourself. Be curious. Ask your own questions. Engage. To quote the writer and poet Annie Dillard, "If you can't see the forest for the trees, then look at the trees; when you've looked at enough trees, you've seen a forest, you've got it."

Ellen Schwartzel
Environmental Commissioner (Acting)

Part 1

The *Environmental Bill of Rights*

The *Environmental Bill of Rights, 1993* (*EBR*) is an environmental law unlike any other in Canada or the world. The purposes of the *EBR* are to:

- protect, conserve and, where reasonable, restore the integrity of the environment;
- provide sustainability of the environment; and
- protect the right of Ontarians to a healthful environment.

To achieve these goals, the *EBR* requires the Ontario government to consider the environment in its decision making. While the government has the primary responsibility for protecting the natural environment, the *EBR* recognizes that the people of Ontario have the right to participate in environmental decision making, as well as the right to hold the government accountable for those decisions. The *EBR* enables Ontarians to exercise their rights to:

- comment on environmentally significant ministry proposals;
- ask a ministry to review an environmentally significant policy, act, regulation or instrument;
- ask a ministry to investigate alleged harm to the environment;
- appeal certain ministry decisions; and
- take legal action to prevent environmental harm.

THE ENVIRONMENTAL COMMISSIONER OF ONTARIO

The Environmental Commissioner of Ontario (ECO), as an independent Officer of the Legislative Assembly, is responsible for reviewing and reporting on the government's compliance with the *EBR*. The ECO monitors how ministries exercise their discretion and carry out their responsibilities under the *EBR*. Each year, the ECO reports on whether ministries have complied with the procedural requirements of the *EBR*, and whether ministry decisions were consistent with their Statements of Environmental Values (SEVs) and the purposes of the *EBR*. The ECO also reports on the progress of the Ontario government in keeping the *EBR* up-to-date by prescribing new ministries, laws and instruments that are environmentally significant. The ECO reports annually to the Legislative Assembly – not to the governing political party or to a ministry.

Part 1 of this Annual Report contains a summary of these reviews, including a discussion of:

- ministries' use of the Environmental Registry, including the quality of the notices posted, the use of information notices and exception notices, and failures of prescribed ministries to post environmentally significant proposals on the Environmental Registry for public notice and consultation (Part 1.2);
- the co-operation of prescribed ministries in responding to ECO requests for information (Part 1.3);
- ministries' handling of applications for review and investigation (Part 1.4);
- the government's progress in prescribing ministries, agencies, laws and instruments under the *EBR* (Part 1.5); and
- the application of Statements of Environmental Values (SEVs) when considering the issuance of instruments (Part 1.6).

The *EBR* provides several legal tools that enable Ontarians to exercise their environmental rights. Parts 1.7 and 1.8 include a summary of these tools, along with a discussion of how members of the public have used them.

The remainder of this Annual Report includes detailed reviews of selected environmentally significant decisions made by prescribed ministries, applications for review and investigation, developing and significant environmental issues, and updates on issues that the ECO has discussed in past reports.

1.1 The Toolkit of the *EBR*

Statement of Environmental Values

The *Environmental Bill of Rights, 1993* (*EBR*) requires each prescribed ministry to develop and publish a Statement of Environmental Values (SEV). Ministries must consider their SEVs when making decisions that might significantly affect the environment. An SEV describes how the ministry will integrate environmental values with social, economic and scientific considerations when it makes environmentally significant decisions. Essentially, an SEV reveals how a given ministry views its environmental responsibilities. The ministry does not always have to conform to its stated values, but it must explain how it considered its SEV when making a decision.

Public Notice and Consultation through the Environmental Registry

The Environmental Registry is one of the key tools of the *EBR* that enable the public to participate in government decision making that affects the environment. It is a website that provides access to information about environmentally significant proposals and decisions made by the Ontario government. The Environmental Registry can be accessed at www.ontario.ca/ebr.

The *EBR* requires prescribed ministries to give notice of environmentally significant proposals on the Environmental Registry. Ministries must provide a minimum of 30 days for the public to submit comments on the proposal before making a final decision. Once a ministry has made a decision, it must post a notice on the Environmental Registry that describes the outcome and explains how public participation affected the decision. Every year, the ECO reports on a selection of decisions posted on the Environmental Registry. The ECO also reviews ministry compliance with *EBR* public notice and consultation requirements.

Responsibilities under the *EBR* only apply to ministries that are prescribed (i.e., designated in a regulation). Fourteen ministries are currently prescribed under the *EBR* for the purposes of SEV consideration and public consultation:

- Ministry of Aboriginal Affairs (MAA)
- Ministry of Agriculture, Food and Rural Affairs (OMAFRA)
- Ministry of Economic Development, Employment and Infrastructure (MEDEI)
- Ministry of Education (EDU)
- Ministry of Energy (ENG)
- Ministry of the Environment and Climate Change (MOECC)
- Ministry of Government and Consumer Services (MGCS)
- Ministry of Health and Long-Term Care (MOHLTC)
- Ministry of Labour (MOL)
- Ministry of Municipal Affairs and Housing (MMAH)
- Ministry of Natural Resources and Forestry (MNRF)
- Ministry of Northern Development and Mines (MNDM)
- Ministry of Tourism, Culture and Sport (MTCS)
- Ministry of Transportation (MTO)

Prescribed ministries must give notice and consult on any proposed environmentally significant act or policy. Ministries must also give notice of proposals for environmentally significant regulations made under prescribed acts. Currently, there are 34 acts prescribed (in whole or in part) in O. Reg. 73/94.

In addition, five ministries (the MGCS, the MOECC, the MMAH, the MNRF and the MNDM) are required to classify instruments (e.g., permits, licences and other approvals) issued under acts administered by those ministries. Only instruments that are classified in O. Reg. 681/94 are subject to the *EBR*. Currently, select instruments issued under 19 different acts are classified. The responsible ministries must give notice on the Environmental Registry of any proposals and decisions related to classified instruments.

Refer to O. Reg. 73/94 and O. Reg. 681/94 for an up-to-date list of ministries, laws and instruments prescribed under the *EBR*.

Applications for Review and Investigation

The *EBR* gives Ontario residents the right to ask a prescribed ministry to review an existing environmentally significant policy, act, regulation or instrument. The public also has the right to ask the government to review the need to develop a new policy, act or regulation. These requests are called "applications for review." Specific acts must be prescribed in order for those acts and the regulations made under them to be subject to the *EBR* application for review provisions. Similarly, instruments must be prescribed under O. Reg. 681/94 to be subject to applications for review.

There are currently nine ministries prescribed for purposes of applications for review under the *EBR*:

- Ministry of Agriculture, Food and Rural Affairs (OMAFRA)
- Ministry of Energy (ENG)
- Ministry of the Environment and Climate Change (MOECC)
- Ministry of Government and Consumer Services (MGCS)
- Ministry of Health and Long-Term Care (MOHLTC)
- Ministry of Municipal Affairs and Housing (MMAH)
- Ministry of Natural Resources and Forestry (MNRF)
- Ministry of Northern Development and Mines (MNDM)
- Ministry of Transportation (MTO)

The *EBR* also provides Ontarians with the right to ask a ministry to investigate alleged contraventions of prescribed acts, regulations or instruments through an "application for investigation." Applications for investigation may be filed for alleged contraventions of 19 different laws prescribed under the *EBR*, and for contraventions of the regulations under those laws. Applications for investigation may also be filed for alleged contraventions of prescribed instruments issued under 18 laws administered by 5 ministries (the MGCS, the MOECC, the MMAH, the MNRF and the MNDM).

Applications for review and investigation are powerful tools that the public can use to influence government decision making, and to ensure environmental laws and policies are upheld. Ministries must follow the procedures set out in the *EBR* when considering applications. The ECO annually reviews and reports on how ministries handle applications. For the ECO's reviews of applications decided in this reporting year, see Sections 2 and 3 of the Supplement to this Annual Report and Part 1.4 of this Annual Report.

Appeals, Lawsuits and Whistleblower Protection

The *EBR* provides Ontarians with increased access to courts and tribunals for the purposes of environmental protection. The *EBR* provides a special right for members of the public to appeal (i.e., challenge) certain ministry decisions regarding instruments. Ontario residents may also take court action to prevent harm to a public resource and to seek damages for environmental harm caused by a public nuisance. Finally, the *EBR* provides enhanced protection for employees who suffer reprisals from their employers for exercising their *EBR* rights or for complying with or seeking the enforcement of environmental rules.

For information about the public's use of *EBR* appeals, lawsuits and whistleblower protection during this reporting year, see Parts 1.7 and 1.8 of this Annual Report.

1.1.1 Understanding the ECO's Jurisdiction

The ECO reports every year on a wide variety of provincial government decisions, applications for review and investigation from the public, and other environmental issues. However, there are some topics that the ECO does not report on because they are outside of our jurisdiction. Generally, "jurisdiction" can be understood as the area of authority granted by law to a particular office or organization. Jurisdiction can be geographic (e.g., the Greater Sudbury Police Service's jurisdiction is the City of Greater Sudbury), or can be based on subject matter (e.g., a bankruptcy court deals only with bankruptcy matters, not criminal cases).

The ECO's jurisdiction is established by the *Environmental Bill of Rights, 1993* (*EBR*). As set out in the *EBR*, a provincial law, the ECO is an officer of the provincial legislature that reports to the Ontario Legislative Assembly; as such, the ECO's jurisdiction is inherently restricted to reviewing matters concerning the provincial government. In addition, the *EBR* sets out a number of functions the ECO must perform and specific subjects the ECO must report upon annually, which further defines the scope of the ECO's authority.* For example, the ECO must report on how well ministries comply with the *EBR*, including their use of the Environmental Registry. The ECO's jurisdiction is also restricted to those ministries and laws that are prescribed under the Act.

While the ECO's scope is quite broad, it is not all-encompassing. There are many environmental issues that matter to Ontarians that are the responsibility of the federal government, not the province. In Canada, the federal and provincial governments each have exclusive authority over a number of subjects as set out in the *Constitution Act, 1867*. Generally, the federal government has jurisdiction over areas of national interest, like foreign affairs and the military, and the provinces control areas of more local interest, like education and health care.

Environmental protection is not among the specific subjects divided between the federal and provincial governments in the *Constitution Act, 1867*, but they both have jurisdiction over areas that relate to the environment; for example, the provincial government generally has responsibility for natural resources, while the federal government is generally responsible for fisheries. As a result, the federal and provincial governments share jurisdiction over some environmental issues. Often, it is other federal or provincial interests associated with an environmental issue that determine which level of government has jurisdiction. For example, Ontario's *Endangered Species Act, 2007* does not apply in national parks as they are federal lands; instead, the federal *Species at Risk Act* applies because the federal government has sole jurisdiction over national parks.

Another common example of federal jurisdiction is nuclear energy generation. Although energy production is usually a provincial matter, nuclear power is under federal jurisdiction because of the large-scale national and international safety concerns associated with nuclear capability. Although Ontario may request that the federal government take a certain approach or address a particular issue, it does not have any direct authority over nuclear energy. Similarly, because they cross provincial boundaries, inter-provincial and international oil and gas pipelines are federally regulated and approved.

When considering whether the ECO should report on a particular issue, the first question we ask is whether or not the matter is within our jurisdiction. This usually means considering whether the issue involves a decision made by one of the provincial ministries prescribed under the *EBR* or, if there has not been any specific government action yet, if the issue appears to fall within the scope of authority granted to an *EBR*-prescribed ministry. Only if the answer to either of these questions is yes, can the ECO be certain it is within our jurisdiction to report on the issue.

**Although nearly all of the functions and reporting requirements set out in the EBR relate to Ontario ministries and laws, section 58.1(2)(c) requires the ECO, in reviewing Ontario's progress in energy conservation, to identify all barriers, including federal and municipal barriers, to energy conservation in Ontario.*

1.2 Use of the Environmental Registry

The Environmental Registry enables the public to exercise their rights under the *Environmental Bill of Rights, 1993* (*EBR*) to participate in government decision making that affects the environment. The *EBR* requires prescribed ministries to post notices of proposals for environmentally significant policies, acts, regulations and instruments on the Environmental Registry, and to provide a minimum of 30 days to comment on such proposals. The public can submit comments online through the Registry proposal notice, by mail and/or by email. Ministries must consider these comments when making a decision on the proposal, and must provide an explanation of how the comments affected the final decision.

The Environmental Registry also provides other information that may assist the public in exercising their *EBR* rights, including:

- notice of appeals and leave to appeal applications related to prescribed instruments;
- background information about the *EBR*;
- links to the full text of the *EBR* and its regulations;
- links to prescribed ministries' Statements of Environmental Values (SEVs);
- in some cases, links to the full text of proposed and final policies, acts, regulations and instruments; and
- in some cases, links to other information relevant to a proposal.

The Environmental Registry is maintained by the Ministry of the Environment and Climate Change (MOECC). The ECO monitors ministries' use of the Environmental Registry to ensure that prescribed ministries are fulfilling their obligations under the *EBR*, and that the public's participation rights are respected.

Ministry Use of the Registry in 2014/2015

In this reporting year, prescribed ministries posted proposals for 36 policies, 19 regulations, and 4 acts (Table 1.2.1). In addition, ministries posted over 900 notices for proposed instruments, such as Environmental Compliance Approvals, Renewable Energy Approvals and Permits to Take Water, to the Registry this year.

Table 1.2.1. Number of Proposal Notices for Policies, Acts and Regulations Posted in the ECO's 2014/2015 Reporting Year (April 1, 2014 – March 31, 2015) by Prescribed Ministry.

Ministry	Total Number of Proposals Posted in 2014/2015	Number of Policy Proposals	Number of Regulation Proposals	Number of Act Proposals
Aboriginal Affairs (MAA)	1	1	0	0
Agriculture, Food and Rural Affairs (OMAFRA)	3	1	2	0
Government and Consumer Services (MGCS)	2	0	2	0
Economic Development, Employment and Infrastructure (MEDEI)	0	0	0	0
Education (EDU)	0	0	0	0
Energy (ENG)	3	0	3	0
Environment and Climate Change (MOECC)	14	6	7	1
Health and Long-Term Care (MOHLTC)	0	0	0	0
Labour (MOL)	0	0	0	0
Municipal Affairs and Housing (MMAH)	2	1	0	1
Natural Resources and Forestry (MNRF)	28	23	5	0
Northern Development and Mines (MNDM)	3	1	0	2
Tourism, Culture and Sport (MTCS)	1	1	0	0
Transportation (MTO)	2	2	0	0
TOTAL	**59**	**36**	**19**	**4**

Under section 58 of the *EBR*, the ECO is required to produce a list of all proposal notices posted on the Environmental Registry between April 1, 2014 and March 31, 2015 that were not decided by March 31, 2015. Open proposals at the end of our reporting year included 953 instruments, 34 policies, 12 regulations and 4 acts. A detailed list is available from the ECO by request.

Quality of Registry Notices

Proposal notices on the Environmental Registry must clearly explain the nature of the proposal and the potential impacts of the proposal on the environment. Including links to supporting documentation, such as the draft text

of a proposed regulation, is helpful to commenters. Decision notices should explain the ministry's final decision (i.e., whether the proposal was approved, denied or abandoned), and how public comments shaped the decision. It is also useful to commenters when decision notices include links to relevant documents, such as finalized policies or approvals.

The quality and clarity of the thousands of notices posted on the Environmental Registry each year can vary. In many cases during this reporting year, proposal notices included clear explanations of the actions proposed by ministries and links to related information or documents. Many decision notices were also posted promptly after approval and explained the rationale behind the decision clearly, including how the ministry considered public comments and how the proposal was revised as a result of the comments, when applicable.

An example of a thorough and detailed Environmental Registry notice is the MOECC's March 2015 proposal notice for amendments to O. Reg. 63/09 (#012-3733) under the *Pesticides Act*, which aim to reduce the use of corn and soybean seeds treated with neonicotinoid insecticides. The notice clearly explained the implications of the proposed amendments and included links to a draft amending regulation, a draft of the final regulation (O. Reg. 63/09), as well as a plain-language explanation of what all the amendments would mean. These documents help the public to correctly understand the implications of the proposal and provide informed comments.

However, not all notices posted on the Environmental Registry included adequate information to facilitate public comment. An example is the Ministry of Natural Resources and Forestry's (MNRF's) May 2014 proposal notice (#012-1549) for regulatory amendments to O. Reg. 242/08 under the *Endangered Species Act, 2007*. The notice did not include a draft version of the proposed provisions, or adequate information on their implications. The regulatory amendments prescribe habitats for five species at risk recently added to the Species at Risk in Ontario List. The notice included a link to the species-specific habitat regulation summaries, but the MNRF did not explain the relationship between recovery strategies, government response statements and habitat regulations, or provide links to the species' recovery strategies or government response statements.

Some entire categories of proposal notices are chronically inadequate. For example, instrument proposal notices for exploration permits under the *Mining Act* consistently lack the basic information needed for a member of the public to provide any sort of meaningful comment. In the 2014/2015 reporting year, the Ministry of Northern Development and Mines (MNDM) posted 54 such instrument proposal notices and 101 instrument decision notices on the Registry. A typical exploration permit proposal notice includes the proponent's name, a list of activities they intend to undertake, the proponent's mining claim number(s), and the name of the district or municipality related to the instrument proposal. The notice does not include an explanation in plain language of what the proposed activities entail or what their effects could be. The location information provided is also inadequate; to determine exactly where the exploration activity would take place, a prospective commenter would have to visit the MNDM's online map of claims (CLAIMaps) and search the claim number manually. The ministry neither links to this map nor even mentions its existence in its exploration permit proposal notices, leaving potential commenters in the dark.

Similarly, proposals for prescribed instruments under the *Aggregate Resources Act* (including proposals to issue licences to extract aggregate, add, rescind or vary licence conditions, and approve site plan amendments) also lack location information that potential commenters can easily interpret. The MNRF posted 59 proposal notices and 60 decision notices for *Aggregate Resources Act* instruments in this reporting year. The location of a pit or quarry is likely one of the most influential factors on whether a member of the public will decide to learn about and comment on a proposal to extract aggregate. However, the MNRF only supplies the municipality or district name, and lot and concession numbers that correspond to the location of a proponent's proposed activities, which is of little use to most prospective commenters. At least some of these locations have street addresses or could be described by their proximity to named roads. By failing to provide usable location information, the MNRF is frustrating the purpose of posting such notices, which is to enable interested members of the public to participate in decision making on environmentally significant proposals they care about. The ECO urges the MNRF and the MNDM to facilitate public comment on proposals for *Aggregate Resources Act* and *Mining Act* instruments by including meaningful and usable information in their proposal notices.

Information Notices

When the government proposes or makes a decision that could affect the environment but for which the *EBR* does not require a proposal notice to be posted on the Environmental Registry, the responsible ministry may inform the public by posting an "information notice."

Proposal notices and information notices are different from each other. Ministries are required to invite and consider public comments on proposal notices, and they must also post decision notices explaining the effect of those comments on their final decisions. Information notices do not usually include invitations to the public to provide comments, and ministries are not required to subsequently post decision notices. Ministries should only post an information notice when a regular proposal notice is not required under the *EBR*.

In the 2014/2015 reporting year, five ministries posted 173 information notices on the Environmental Registry (see Table 1.2.2). Information notices commonly contained information on decisions such as: Forest Management Plans; permits under the *Endangered Species Act, 2007*; amendments to Renewable Energy Approvals under the *Environmental Protection Act*; approval of Source Protection Plans under the *Clean Water Act, 2006*; and Minister's Zoning Orders under the *Planning Act*.

Section 32 of the *EBR* exempts instruments for projects that are subject to the *Environmental Assessment Act* from the *EBR*'s requirements for public notice and consultation, but ministries sometimes inform the public about such instruments through information notices. For example, in December 2014 the MOECC posted an information notice (#012-2979) for a proposed multi-media Environmental Compliance Approval (ECA) for a landfill expansion, which was already subject to the *Environmental Assessment Act*; to its credit, the ministry recognized there was public interest in the project and determined that posting an information notice and inviting public comments would best serve the public. Similarly, the MNDM published several information notices during the 2014/2015 reporting year (#012-2458, #012-3676, #012-1637) that requested comments on proposals that were covered by Class Environmental Assessments. The ECO commends these ministries for their efforts to include the public in these environmentally significant decisions.

Table 1.2.2. Number of Information Notices Posted by Ministry, 2014/2015 Reporting Year

Ministry	Number of Infomation Notices
Environment and Climate Change (MOECC)	80
Municipal Affairs and Housing (MMAH)	8
Natural Resources and Forestry (MNRF)	72
Northern Development and Mines (MDNM)	9
Transportation (MTO)	4
TOTAL	**173**

Exception Notices

In certain situations, the *EBR* relieves prescribed ministries of their obligation to post proposal notices on the Environmental Registry. In such situations, ministries must instead post an "exception notice" to inform the public of a decision and explain why it was not posted as a proposal. There are two main circumstances under which ministries can post an exception notice instead of a proposal notice. First, ministries are permitted to post an exception notice under section 29 of the *EBR* when a decision has to be made quickly in order to deal with an emergency, and the delay in waiting for public comment would result in danger to public health or safety, harm or serious risk to the environment, or injury or damage to property. Ministries can also post an environmentally significant proposal as an exception notice under section 30 of the *EBR* when the proposal will be or has already been considered in another public participation process that is substantially equivalent to the process required under the *EBR*.

During the 2014/2015 reporting year, the MOECC posted three exception notices on the Environmental Registry. The ECO believes that all were acceptable uses of the *EBR*'s exception provisions. A particularly thorough example is an exception notice (#012-2104) for a Director's Order under the *Environmental Protection Act* to identify and remove waste materials, including hazardous wastes, from a building in Kingston. In addition to detailing the contents of the order and stating that the work described in the order needed to be undertaken as soon as possible to protect human health and the environment, the notice was reposted several months later with new information indicating that the proponent had complied with the order.

Failures to Comply with *EBR* Public Consultation Requirements

The ECO has a statutory duty to report to the Ontario Legislature on how well ministries are fulfilling their obligations under the *EBR* to notify and consult the public on environmentally significant proposals through the Environmental Registry. These obligations seem simple enough, yet, every year, the ECO observes instances in which the requirements for notification and comment are circumvented when ministries fail to post proposal notices for new policies, regulations or laws (see Table 1.2.3). Several examples of ministries' failures to properly post proposal notices on the Environmental Registry are highlighted below.

Table 1.2.3. Ministry Non-Compliance with the *EBR* by Failing to Post on the Environmental Registry, 2014/2015 Reporting Year.

Ministry of Natural Resources and Forestry
• *Forest Compliance Handbook 2014*
• *Best Management Practices for Aggregate Activities and Woodland Caribou in Ontario*
• Ontario's Invasive Aquatic Plant List
• Regulatory amendments under the *Provincial Parks and Conservation Reserves Act, 2006* to amend the boundary of Voyageur Provincial Park
Ministry of Economic Development, Employment and Infrastructure
• *Infrastructure for Jobs and Prosperity Act, 2015*

Still No Chance to Comment: The MNRF's Best Management Practices for Aggregate Activities and Woodland Caribou

In 2014, the MNRF released its most recent *State of the Woodland Caribou Resource Report*, which listed several best management practice (BMP) documents to guide industries that operate in forests inhabited by woodland caribou. These policies are intended to assist proponents with minimizing the impacts of these industries on this at-risk species. Woodland caribou are extremely sensitive to disturbances such as noise, roads and industrial development. Accordingly, mining, energy and tourism industries can have major impacts on this species at risk. The ECO reported on the MNRF's failure to post the caribou BMPs for mineral exploration, renewable energy, and tourism in Part 1.2 of our 2013/2014 Annual Report. Through the 2014 *State of the Woodland Caribou Resource Report*, the ECO learned that the *Best Management Practices for Aggregate Activities and Woodland Caribou in Ontario* (Aggregates BMPs) had also been completed without public input.

When the ECO asked the MNRF why it did not post a policy proposal on the Registry to notify the public of the development of the Aggregates BMPs and invite comments, the ministry stated that the BMP document is a technical, science-based document intended to help operationalize approved policy direction under the *Endangered Species Act, 2007*. It also stated that the ministry does not in general consider BMPs to constitute policy direction; rather, they view them as information sources available to sector groups when conducting sector-related activities.

The ECO disagrees with this rationale. The BMPs are an environmentally significant policy; the Aggregates BMPs provide advice to industry on how to conduct operations in order to avoid, minimize and mitigate their impacts to caribou and caribou habitat. Compliance with the Aggregates BMPs also assists proponents in meeting legal requirements. As an environmentally significant policy, the BMPs (and all previous BMPs) should have been posted to the Registry for public comment. The public has a right to know and provide input on how woodland caribou are being protected and recovered. In addition, as of April 2015, the Aggregates BMPs are unavailable to the public through the ministry's online library of species-at-risk guides and resources, unlike the other three BMP documents. It is noteworthy that the MNRF's species at risk program area, year after year, continues to neglect the *EBR*'s public consultation requirements despite repeated reminders by the ECO in our Annual Reports.

No Chance to Comment: Adding Land to a Protected Area

In January 2015, the MNRF amended O. Reg. 316/07 under the *Provincial Parks and Conservation Reserves Act, 2006* (*PPCRA*) to add two parcels of land totalling approximately 40 hectares to Voyageur Provincial Park. In response to the ECO's inquiry about why the regulatory amendment was not posted on the Environmental Registry, the MNRF stated the amendment was not environmentally significant. However, by the ministry's own admission, regulation of the additional parcels will eliminate significant fragmentation of protected land, including wetland complexes. The ECO was encouraged to note that in a nearly identical situation, later in 2015, the MNRF did in fact post a regulation proposal notice (#012-3329) to invite public comment on a regulatory amendment to add

over 300 hectares of land to Pigeon River Provincial Park and LaVerendrye Provincial Park.

Improper Use of Information Notices

Sometimes, ministries improperly post information notices for initiatives that should be posted as regular proposal notices. Such information notices typically do not include the right to comment. Even in cases where ministries post information notices on the Registry that do invite public comment, these ministries still deny the public some of its *EBR* rights in failing to follow the proper process to post decision notices that clearly indicate how comments were considered and what was finally decided. Seeking comments with neither the requirement to consider them, nor the accountability of having the ECO verify that comments were considered, disregards the instructions of the legislature and misleads the public.

For example, the MOECC misused information notices twice during this reporting year in relation to the *Environmental Assessment Act:* for soliciting comments on the ministry's review of a proposed amendment to a Class Environmental Assessment (Class EA) for Provincial Transportation Facilities submitted by the Ministry of Transportation (#012-2646), and for soliciting comments on the ministry's review of a proposed Class EA for Minor Transmission Facilities submitted by Hydro One (#012-2473). It is the ECO's position that proposals for new Class EAs or amendments to existing Class EAs are environmentally significant policies, and thus should be posted on the Registry as policy proposals, not as information notices.

Comments from the MOECC

The ministry agrees that the quality and clarity of the information provided for public engagement is very important. Posting clear and concise proposal notices on the Environmental Registry is one tool available. Proponents of Class EAs consult on the proposed amendments using various methods such as newspaper ads and/or public meetings before they are submitted to the ministry. The ministry posts these proposed changes on the ministry's EA Projects website (https://www.ontario.ca/search/class-environmental-assessments-approved-class-ea-information) and places notices in newspapers, and information may be provided in other ways such as direct mail out and/or community posters. The ministry may also post certain Class EAs on the Registry to enhance public participation using the information notice method to do so.

1.2.1 The Environmental Registry: Ripe for an Overhaul

Ontario's Environmental Registry has a dual personality. On the one hand, the Registry is an indispensable online resource for anyone following Ontario environmental issues, and the pre-eminent public engagement tool created by the *Environmental Bill of Rights, 1993* (*EBR*). On the other hand, the Registry has become a creaky antique. It is a source of much frustration for members of the public, who must navigate its dated layout and often baffling search functions.

The Ministry of the Environment and Climate Change (MOECC) has been responsible for administering the Registry since its creation. There was a time when the Environmental Commissioner congratulated the ministry, commending it for "investing the considerable time and resources needed to upgrade the Registry technically." That time was 1997; since then, the internet has been utterly transformed, but the Environmental Registry's website has stayed pretty much the same.

Through the ECO's public outreach function, our office regularly hears complaints about the Registry's format. Among other concerns, users complain that:

- they cannot sign up to receive email alerts on specific topics;
- the search functions are complicated and confusing;
- it is hard to use with mobile devices;
- it does not allow map-based searches; and
- its font and format are hard to read.

Poor compatibility with mobile devices is just one example of how outdated technology is impeding the Registry's effectiveness. Recent trends show that young adults (aged 18–29) overwhelmingly use mobile devices to access the internet. By not changing with the times, the Registry is becoming unattractive to a growing segment of the population.

The ECO has highlighted in several recent ECO annual reports that the Registry should be updated and made more user friendly. To its credit, the MOECC has made efforts to patch certain Registry templates and fix some outdated terminology. But to ensure that the public can effectively use their rights under the *EBR*, there is now a pressing need to overhaul the Registry's underlying architecture and bring it up to current standards. The Registry has long been the *EBR*'s best-used public engagement tool and its public face. Like any public infrastructure, however, it needs periodic upkeep and investment. Long neglected, the Registry risks becoming an outright hindrance to the *EBR*'s expectations of engaging Ontarians "in an effective, timely, open and fair manner."

A revamped Registry would also dovetail with the Ontario government's Open Government Initiative. "Open Government" was launched in 2013 with the Premier's request that each ministry develop a plan on how it will become open and engaged. Rather than creating new mechanisms from scratch, the 14 ministries already prescribed under the *EBR* would be smart to build on the Registry's foundation as a vehicle for consulting the public on environmental matters.

In 1994, Ontario could take pride in the Environmental Registry as a leading-edge approach to civic engagement. Today, jurisdictions in all parts of the globe boast online public engagement portals, some with very attractive, user-friendly designs. Clearly there is scope for Ontario to examine some of the best approaches used elsewhere, and adapt to our own province's needs.

Updated Registry functions need not always be expensive to develop. As a public service, the ECO developed a Registry alert service with a modest budget that will be launched this year. This new tool will email alerts to users whenever their chosen keywords show up in new Registry notices.

The Registry remains a valuable citizen engagement tool, used by thousands of Ontarians each year. The ECO will continue to encourage Ontarians to use the Registry, despite its dated features. But the ECO also urges the MOECC to invest in an overhaul of the Registry's technical platform, allowing it to serve Ontarians effectively in the 21st century.

Ideally, a Registry overhaul would:

- build on input from current Registry users as well as the needs of the next generation of tech-savvy users;
- consider best practices used by online consultation tools in other jurisdictions;
- ensure that a revamped Registry is compatible with mobile devices;
- ensure that search functions are user friendly, especially for popular types of searches; and
- ensure that Registry administrators can fine-tune the platform as needed in the future, including periodic updates to reflect inevitable changes to legislation, permitting systems and ministry names.

RECOMMENDATION 1:
The ECO recommends that the MOECC invest in an overhaul of the Environmental Registry's technical platform, in keeping with the broader Open Government initiative.

Comments from the MOECC

The ministry recognizes the Environmental Registry's critical role in promoting public engagement on environmental issues. The ministry also acknowledges the Registry's limitations in light of technological advances and changes in user preferences.

The ministry will continue to identify Registry revitalization opportunities within the context of prudent financial investment. A project is currently underway to ensure the Registry will be compliant with the Accessibility for Ontarians with Disabilities Act (AODA).

1.2.2 Outdated Proposals

The proposal notice is just the beginning of the public consultation process under the *Environmental Bill of Rights, 1993* (*EBR*). After a proposal notice has been posted on the Environmental Registry, the public may submit comments on the proposal, and then, once comments have been considered and a decision has been made whether or not to implement the proposal, the responsible ministry is required to give notice on the Registry "as soon as reasonably possible."

In practice, prescribed ministries do not always complete this sequence of tasks. In too many cases ministries fail to post decision notices in a timely manner, if at all. Even in situations where decisions have not yet been (or perhaps will never be) made, ministries should still update proposal notices to reflect the current status of the policy, regulation, act or instrument. A decision notice lets the public know how the ministry considered public comments on the proposal, and what the final outcome of the decision-making process is. If no decision notice is posted, the public's rights under the *EBR* are undermined.

Orphaned Proposal Notices for Policies, Acts and Regulations

As of March 31, 2015, there were 211 proposals for policies, regulations or acts that had been posted on the Environmental Registry before January 1, 2014 and that did not yet have a corresponding decision notice. The Ministry of the Environment and Climate Change (MOECC) alone had 94 orphaned proposal notices for acts, policies or regulations posted before 2014, including 57 proposal notices that were from 2005 or earlier. The Ministry of Natural Resources and Forestry (MNRF) had 71 orphaned policy proposal notices, many of which are for protected area management plans and fisheries management plans.

Table 1.2.2.1: Proposal Notices Posted Before January 1, 2014, and Without Corresponding Decision Notices as of March 31, 2015

Ministry	Total Number of Proposals	Number of Policy Proposals	Number of Regulation Proposals	Number of Act Proposals
Agriculture, Food and Rural Affairs (OMAFRA)	4	3	1	0
Government and Consumer Services (MGCS)	4	2	2	0
Economic Development, Employment and Infrastructure (MEDEI)	0	0	0	0
Energy (ENG)	7	1	5	1
Environment and Climate Change (MOECC)	94	50	41	3
Municipal Affairs and Housing (MMAH)	2	1	1	0
Natural Resources and Forestry (MNRF)	82	71	11	0
Northern Development and Mines (MNDM)	7	1	5	1
Tourism, Culture and Sport (MTCS)	1	0	1	0
Transportation (MTO)	10	9	0	1
TOTAL	**211**	**138**	**67**	**6**

For example, in 2007, the MNRF posted a proposal notice (#010-1025) for a *Central Lake Ontario Fisheries Management Plan*; as of April 2015, the ministry still had not posted a decision notice for this policy on the Environmental Registry. However, in 2009 the MNRF posted a policy proposal and subsequent decision notice (#010-5587) for the *Fisheries Management Zone 17 Fisheries Management Plan*, which covers an area that includes waterbodies that were also covered in the proposed 2007 *Central Lake Ontario Fisheries Management Plan*. As a result, members of the public who submitted comments on the Central Lake Ontario Plan don't know if or how their comments were considered in finalizing either the Central Lake Ontario or Zone 17 plans. The MNRF should have posted a decision notice informing the public of the outcome of the decision-making process for the Central Lake Ontario Plan, and, if appropriate, referring interested commenters to the proposal notice for the Zone 17 management plan.

Orphaned Instrument Proposal Notices

Failing to post a decision notice for any type of environmentally significant proposal is problematic. However, the consequences of failing to post a decision for a prescribed instrument are potentially even more serious. After an instrument decision notice has been posted, the public's appeal rights established under the *EBR* are engaged. Any resident of Ontario is entitled to seek leave to appeal a decision within 15 days of the date that a decision notice is posted on the Environmental Registry, provided that they have an interest in the decision, and that another person (e.g., the instrument holder) has a right under another act to appeal. If a decision notice is not posted, the third party appeal rights established under the *EBR* are delayed and denied, which places potential appellants at a disadvantage and undermines certainty for instrument holders. As of April 1, 2015, there were 1,703 instrument proposal notices on the Environmental Registry that were posted before January 1, 2014. The ECO reported extensively on this issue in Part 1.2.2 of our 2012/2013 Annual Report.

During the last reporting year, the MOECC posted over 700 overdue decision notices for instrument proposals. The ECO is pleased to see the MOECC making an effort to post decision notices for these orphaned instrument

proposals. The public has a right under the *EBR* to be informed of the decisions made in relation to proposals posted on the Environmental Registry (or when such proposals are abandoned).

However, the MOECC's efforts to address orphaned instrument proposals have apparently not extended to its pesticides program. Despite posting dozens of proposals to classify, reclassify or declassify a pesticide each year, at the end of the ECO's reporting year the ministry had not posted a single decision notice for any of these prescribed instruments since August 2012. As of March 31, 2015, there were 42 such proposal notices on the Environmental Registry – but according to the MOECC's Pesticides Classification Database a minimum of 38 of these proposals have already been decided (i.e., the pesticides have been classified or reclassified).

The ECO continues to urge ministries to post decision notices promptly and to make certain that open proposals are closed off. This will provide greater certainty to instrument holders, ensure that members of the public are able to exercise their appeal rights, and ensure that the public's right to know about environmentally significant government decisions is upheld.

Comments from the MOECC

The ministry appreciates the ECO's recognition of our efforts to post overdue decision notices in the last reporting year.

Since May, 2015, the ministry has posted four decision notices related to the classification of pesticides. The ministry recognizes the importance of communicating decisions and will work to resolve all the outdated decision postings in a timely manner over the course of this year.

Comments from the MNDM

MNDM has a total of seven outdated proposals on the Environmental Registry. Thank you for bringing this to our attention. The postings in question are for a range of issues and date back to 1998. Initiatives to address these issues were completed. MNDM has taken the orphaned proposals into consideration and intends to ensure open proposals are closed off in the future.

1.3 Ministry Co-operation

The ECO relies on the co-operation of staff in prescribed ministries to carry out our mandate and to review environmentally significant decisions promptly and efficiently. The prescribed ministries each have at least one staff person designated as their *Environmental Bill of Rights, 1993* (*EBR*) co-ordinator, who is responsible for facilitating the implementation of the *EBR* within their ministry. Most interactions between the ECO and the ministries occur via these co-ordinators. The ECO also contacts ministry staff responsible for program delivery with specific requests for detailed information such as data, internal documents, and explanations of ministry positions or interpretations. Under the *EBR*, the ECO is required to report on how well prescribed ministries co-operate with the ECO to fulfill these requests.

During our 2014/2015 reporting year, staff at prescribed ministries were generally co-operative and provided the ECO with clear and prompt responses to enquiries, additional relevant information, and regular updates on matters requiring a longer response time. Staff also helped co-ordinate and attended meetings to discuss matters of interest.

For example, in September 2014, the ECO wrote to 16 government ministries to request an update on the implementation of the Ontario government's plan to conserve biodiversity (see Part 4.1 of this Annual Report). All ministries contacted by the ECO provided a response to this request during our reporting year. Several ministries, including the Ministry of Agriculture, Food and Rural Affairs and the Ministry of Tourism, Culture and Sport, replied promptly and provided extensive detail on their activities under the plan.

Staff at the Ministry of the Environment and Climate Change (MOECC) were also exceptionally helpful in providing background information for the ECO's examination of financial assurance for environmental rehabilitation (see Part 2.1 of this Annual Report). MOECC staff met with the ECO to discuss financial assurance and provided us with detailed data and reports.

1.4 Ministries' Handling of Applications for Review and Investigation

The *Environmental Bill of Rights, 1993* (*EBR*) provides Ontario residents with the right to ask prescribed ministries to review environmental legislation, regulations, policies or instruments, or to review the need to develop new protections for the environment. Similarly, the public can ask ministries to conduct an investigation if they believe that environmental laws have been contravened. The public exercises these rights by submitting applications for review and applications for investigation to the ECO, which then forwards the applications to the appropriate ministries for consideration.

In the 2014/2015 reporting year, the ECO received four applications for review. One application concerns public notification requirements when wastewater treatment plants discharge untreated sewage; this application was sent to the Ministry of the Environment and Climate Change (MOECC). The ministry agreed to undertake the review, which was completed in August 2015 (the ECO will review the ministry's decision in our 2015/2016 Annual Report). The ECO also received an application concerning soil management in agricultural operations, which was sent to the MOECC, the Ministry of Municipal Affairs and Housing (MMAH) and the Ministry of Agriculture, Food and Rural Affairs (OMAFRA). Both the MOECC and the MMAH denied this application for review; however, the OMAFRA agreed to undertake the review, and as of September 2015 the review was ongoing.

The ECO received six applications for investigation in 2014/2015, all of which were directed to the MOECC. The applicants alleged contraventions of the following:

- the *Environmental Protection Act* with regard to discharge of contaminants or waste disposal;
- the *Environmental Assessment Act*; and/or
- the *Ontario Water Resources Act* with regard to water pollution.

The MOECC denied four of these six applications and agreed to undertake one. As of September 2015 the ministry's preliminary decision on one application was pending. During this reporting year the MOECC also denied two applications for investigation that were submitted in 2013/2014.

The ministry's denial of most applications for investigation is consistent with past trends. In almost half of the cases this reporting year, the ECO agreed with the ministry's decision to deny the application for investigation; yet in still far too many cases, the ECO believes that the applicants raised valid concerns that were left unaddressed by the ministry. For a detailed review of all applications, please see Sections 2 and 3 of the Supplement to this Annual Report.

Ministry Non-Compliance with Application Timelines

The *EBR* requires prescribed ministries to notify applicants of preliminary decisions on applications for review within 60 days. The ECO is disappointed to report the continued failure of the MOECC to meet this non-discretionary deadline. For example, the MOECC was almost nine months late in deciding whether to accept one application requesting a review of the *Ontario Water Resources Act* with regard to water wells, which was submitted in early 2014. Although the ECO appreciates that the ministry informed the applicants that it would take additional time to make a preliminary decision on these applications, the statutory deadline is not flexible.

The *EBR* directs that when a ministry decides to undertake a review, it "shall conduct the review within a reasonable time." Ten reviews were in progress at the end of the ECO's 2014/2015 reporting year, eight of which have been underway for over a year. One of the reviews undertaken by the MOECC has been outstanding for over six years, and two others have been outstanding for over four years.

The MOECC took over 20 years to complete a review of the classification of chromium within the waste management regulation under the *Environmental Protection Act*. The review was finally completed in this reporting year. There is no rational excuse for taking two decades to report back to concerned members of the public on an issue. The ECO is extremely disappointed with the ministry's handling of this application. For a detailed review of this application, please see Section 2.2.1 of the Supplement to this Annual Report.

Last year, the ECO reported in detail on the ministries' timelines for completing *EBR* applications for review from 2000 to 2014 (see Part 1.4 of our 2013/2014 Annual Report). The ECO continues to monitor ministry compliance with application requirements, and urges all ministries to meet the statutory timelines for responding to *EBR* applications. Applications for review allow Ontarians to get involved in improving environmental protection and health. However, prolonged reviews, especially with little communication to the applicants, defeat the *EBR*'s principles of public participation and accountability. The ECO urges the MOECC to complete its numerous overdue reviews, and encourages all prescribed ministries to keep applicants informed of the progress of reviews they have undertaken.

Comments from the MOECC

The ministry acknowledges the importance of timely decisions on applications for review.

Some EBR applications raise complex matters requiring integrated, multi-faceted response by government.

For example, the ministry is making progress on its response to the 2009 application regarding Pollution Hot Spots regulation. We have proposed delineation of air zones that would guide air quality management actions. We will conduct outreach with local communities this autumn on further actions to improve air quality.

1.5 Keeping the *EBR* in Sync with Government Changes and New Laws

Keeping the *Environmental Bill of Rights, 1993* (*EBR*) up to date with new laws, new ministries, and the shuffling of government portfolios can be challenging. The ECO monitors these changes and encourages the government to regularly update the *EBR* regulations (O. Reg. 73/94 and O. Reg. 681/94) to ensure Ontario residents can continue to participate in all environmentally significant government decisions.

When ministries are prescribed, they must comply with the *EBR*'s public notice and consultation requirements for environmentally significant policies, acts and regulations. Prescribed ministries are also required to develop a Statement of Environmental Values and consider those values when making any environmentally significant decisions.

Prescribing environmentally significant acts ensures that proposals for environmentally significant regulations under those acts are posted on the Environmental Registry. Prescribed acts may also be subject to applications for review and investigation.

Similarly, classifying instruments under the *EBR* is important because it requires ministries to give notice on the Environmental Registry of any proposals and decisions related to those instruments, and to consider comments from the public during their decision-making processes. Generally, classified instruments are also subject to applications for review and investigation. In some cases, classifying instruments may provide members of the public with the right to seek leave to appeal decisions on those instruments.

Newly Prescribed Ministries

In 2014, the government amended O. Reg. 73/94 to prescribe the Ministry of Aboriginal Affairs (MAA) under the *EBR*, ensuring that the public has a chance to comment on environmentally significant acts and policies proposed by this ministry.

Also in 2014, the Ministry of Infrastructure (MOI) became part of the newly-named Ministry of Economic Development, Employment and Infrastructure (MEDEI), which was previously the Ministry of Economic Development, Trade and Employment. The government amended O. Reg. 73/94 in late 2014 to reflect the ministry's new name.

After several years of asking the government to ensure that the MAA and the former MOI were prescribed under the *EBR*, the ECO commends the government for taking this step and enabling the public to comment on new acts and policies in the infrastructure and Aboriginal affairs portfolios.

Both the MAA and the MEDEI have posted proposals for their new Statements of Environmental Values on the Environmental Registry (#012-3828 and #012-3858). According to the ministries, the finalized Statements of Environmental Values will be posted on the Environmental Registry no later than September 30, 2015.

Ministry Name Changes

The government also amended O. Reg. 73/94 and O. Reg. 681/94 in 2014 to update the names of ministries that are subject to the requirements of the *EBR*, including the following ministries:

- the Ministry of Agriculture and Food and Ministry of Rural Affairs became the Ministry of Agriculture, Food and Rural Affairs;
- the Ministry of Consumer Services and the Ministry of Government Services became the Ministry of Government and Consumer Services;
- the Ministry of Economic Development, Trade and Employment became the Ministry of Economic Development, Employment and Infrastructure;
- the Ministry of the Environment became the Ministry of the Environment and Climate Change; and
- the Ministry of Natural Resources became the Ministry of Natural Resources and Forestry.

The ECO is pleased that the government made these amendments in a timely fashion, preventing potential confusion about the status of these ministries under the *EBR*.

No Longer Prescribed: Treasury Board Secretariat

In 2014, the government made the Treasury Board Secretariat a stand-alone body, ending its direct affiliation with the Ministry of Government and Consumer Services. This change had the effect of making the Treasury Board Secretariat no longer subject to the *EBR*. The Treasury Board Secretariat is responsible for leading internal waste reduction, energy efficiency and greenhouse gas reduction efforts across the entire government. The ECO urges the MOECC to work with the Treasury Board Secretariat to prescribe it under the *EBR*.

Newly Prescribed Instruments of the *Far North Act, 2010*

In August 2012, the *Far North Act, 2010* was prescribed under the *EBR*. Subsequently, in October 2013, the Ministry of Natural Resources and Forestry (MNRF) posted an information notice (#012-0087) on the Environmental Registry to inform the public about its intentions to classify nine of the Act's instruments.

In December 2014, the government finally made amendments to O. Reg. 681/94 that classified five instruments under the *Far North Act, 2010* (Environmental Registry #012-2627). Instruments now prescribed under the *EBR* include proposals for:

- orders approving the mandatory components of a land use plan;
- orders approving amendments to a land use plan in respect of its mandatory components;
- orders amending the boundaries of a planning area that would remove an area from a protected area designation or other designation that prohibits prospecting, mining claim staking, or mineral exploration, and where the effect of the amendment would be that these activities are no longer prohibited under the Act;
- orders by Cabinet allowing the opening of a mine, or oil and gas exploration or production, in the absence of a land use plan, if it is determined to be in the social and economic interests of Ontario; and
- orders permitting the allocation, disposition or use of public land and natural resources otherwise prohibited by an existing land use plan designation (including designation as a protected area), as long as the disposition is determined to be in the social or economic interests of Ontario.

However, the MNRF decided not to prescribe a number of other instruments of the *Far North Act, 2010*, including proposals for orders that permit other types of activities and development in the absence of a land use plan.

Such orders may pertain to: commercial timber harvesting; constructing or expanding certain electrical facilities and infrastructure; constructing or expanding all weather transportation infrastructure; constructing or expanding any other prescribed infrastructure; and any other prescribed land use or activity.

Although some of these instruments were initially proposed for classification, the MNRF later advised that they would not be prescribed because they fall under the exception in section 32 of the *EBR*, which states that ministries are not required to post proposals for instruments that would be a step towards implementing an undertaking approved (or exempted by regulation) under the *Environmental Assessment Act*. The ECO has previously raised the issue of how section 32 of the *EBR* has been applied by some ministries to shield approvals from public notification and comment. (For a further discussion, see "No Right to Know: Instruments and Section 32 of the *EBR*" in the ECO's 2012/2013 Annual Report.)

The MNRF also did not classify proposals for: ministerial orders that designate an area as an area of provisional protection where no community based land use plan exists; or ministerial orders that stop activities that are not permitted by the community based land use plan for the planning area, or developments not permitted in a protected area under the Act. The ministry does not consider these two instruments to be environmentally significant. The ECO disagrees; the designation of an area as provisionally protected will prevent certain land uses from taking place on that land – an outcome that may often have positive effects on the environment, and is in the public interest. Likewise, an order to stop activities not permitted under a community based land use plan or in a protected area could also have a positive effect on the environment of that area (e.g., if land was being illegally cleared, or resource extraction was undertaken unlawfully). Decisions about land use often have environmental implications; these instruments should be classified, and proposals for them should be assessed individually to determine whether they might significantly affect the environment.

Proposals for Water Transfers Now Posted on the Environmental Registry

Permits to Take Water under section 34 of the *Ontario Water Resources Act* (*OWRA*) have been prescribed as instruments under the *EBR* since 1994. In 2014, the government amended O. Reg. 681/94 to specify that proposals for new or increased intra-basin water transfers (the taking and transport of water from one Great Lakes watershed to another) would also be subject to the *EBR* requirements for posting on the Environmental Registry, following the existing rules for Permits to Take Water.

The amendment to O. Reg. 681/94 clarifies the government's intent to ensure the public can participate not only in decisions about the taking of water, but also in decisions about moving that water between watersheds. The amendment should also ensure that the MOECC includes relevant information about a proposed intra-basin transfer in the proposal notice for the permit posted on the Registry, including, for example, the watersheds involved and the ministry's rationale for allowing water to be transferred. With intra-basin transfers now explicitly prescribed under the *EBR*, Ontario residents also have the right to seek leave to appeal a decision whether to allow a transfer.

Like other Permits to Take Water, proposals for permits authorizing an intra-basin transfer for less than one year are not required to be posted on the Environmental Registry for public consultation. Proposals for permits authorizing the taking or transfer of water for the purposes of irrigation of agricultural crops or watering livestock or poultry are also excepted from the posting requirement, as are proposals by a permit holder, made before January 1, 2017, for "deemed current transfers" (i.e., requests to have the MOECC Director deem the permit holder to be currently transferring an amount of water specified by the Director).

The ECO is pleased that the MOECC promptly amended O. Reg. 681/94 to ensure that permits for new and increased water transfers will be subject to the public participation provisions of the *EBR*. Transfers between Great Lakes watersheds can have significant environmental consequences, and the public should have a right to know about and comment on government decisions regarding permits for such transfers. To this end, the ECO believes the MOECC should in fact classify all Permits to Take Water, including permits for transfers, regardless of the purpose or duration of the water taking or transfer (see Part 3.4 of this Annual Report).

Instruments Still Not Prescribed...

Despite the ECO's past recommendations, the following instruments are still not prescribed under the *EBR*:

- water management plans under the *Lakes and Rivers Improvement Act*; and
- nutrient management instruments under the *Nutrient Management Act, 2002*.

The ECO is disappointed that no progress has been made during this reporting year in prescribing these instruments. The ECO believes that the public should be able to exercise their rights to know about and comment on the use of these environmentally significant instruments.

Comments from the MOECC

The ministry is committed to aligning the EBR with changes in government legislation, policies, programs and mandates, including ministry name changes. The ministry recently worked with the Ministry of Aboriginal Affairs (MAA) to prescribe MAA under the EBR effective January 2015 and helped MAA prepare and post its draft SEV for public consultation on the Environmental Registry in March 2015.

1.6 Statements of Environmental Values

Statements of Environmental Values (SEVs) set out how a prescribed ministry will apply the purposes of the *Environmental Bill of Rights, 1993* (*EBR*) when making environmentally significant decisions. In addition, an SEV must explain how the purposes of the *EBR* will be integrated with other factors, including social, economic and scientific considerations, that inform decision making within a ministry.

An SEV should be both a statement of environmental principles that are specific to the ministry, as well as a guidance document that establishes how these environmental principles will be integrated into ministry decision making in a meaningful way (for more on the purposes underlying SEVs, see Part 8.2 of the ECO's 2008/2009 Annual Report).

SEV Consideration for Instruments

The ECO is obligated to report annually on how well ministries comply with the requirement to consider their SEVs. A prescribed ministry must be able to demonstrate, through documentation, that it considered its SEV when making environmentally significant decisions in order for the ECO to assess its compliance.

The ECO typically requests "SEV consideration documents" for all act, regulation and policy decisions posted on the Environmental Registry. In 2011 the ECO also began requesting proof of SEV consideration for select instrument decisions. Subsequently, the ECO determined that some ministries were not satisfactorily documenting how they considered their SEVs when making decisions to issue certain prescribed instruments. Since that time, the ECO has urged ministries – particularly the Ministry of Environment and Climate Change (MOECC) and the Ministry of Natural Resources and Forestry (MNRF) – to develop a new process, or improve existing processes, to document their SEV consideration when making instrument decisions that affect the environment.

In this reporting year, the Ministry of Northern Development and Mines and the Ministry of Municipal Affairs and Housing supplied the ECO with all requested SEV consideration documents; however, the MNRF and the MOECC were unable to provide all requested documentation (Table 1.6.1).

Unfortunately, this long-standing problem has not been addressed by the MNRF, which failed to provide copies of 11 of the 16 SEV consideration documents requested during the 2014/2015 reporting year. The ECO is particularly troubled by the MNRF's responses to several requests for SEV consideration documents for instrument decisions, including documents for seven permits under the *Aggregate Resources Act* and one under the *Endangered Species Act, 2007*. For these decisions, the ministry stated that it had determined that SEV consideration notes were not warranted or required, or simply stated that it had not documented how it considered its SEV. Failing to provide evidence of SEV consideration hampers the ECO's ability to report on SEV compliance, as required under the *EBR*. In most of these cases the ministry did not provide a specific reason for its failure to document SEV consideration, while for some it provided reasons such as: the potential for environmental harm was determined to be low; the project was not determined to be large-scale or complex; or the approval concerned a pre-existing project. The ECO once again urges the MNRF to ensure that it has the necessary processes in place to document how it considers its SEV and to promptly provide the ECO with evidence of that consideration.

By contrast, the MOECC demonstrated substantial improvement over previous years. The ministry acknowledged all of the ECO's SEV inquiries, and provided 90 of the 94 SEV consideration documents requested. The ECO commends the ministry for its efforts to address this issue and encourages it to ensure that it can provide SEV documentation for all instrument decisions going forward.

Table 1.6.1: Summary of Requests for SEV Consideration Documents for Instrument Decisions Between April 1, 2014 and March 31, 2015 (as of June 1, 2015)

Ministry	Number of Instrument Decisions	Number of SEV Consideration Document Requests	Number of SEV Consideration Documents Received
Environment and Climate Change (MOECC)	1873	94	90
Natural Resources and Forestry (MNRF)	73	16	5
Municipal Affairs and Housing (MMAH)	75	3	3
Northern Development and Mines (MNDM)	120	6	6

Comments from the MOECC

The ministry recognizes the importance of applying and documenting its Statement of Environmental Values (SEV) considerations and will endeavor to provide all future SEV consideration documents as requested. The ministry has made substantial improvements by fulfilling 96% of the ECO's requests, an increase of 45% from the previous year.

1.7 Appeals of Prescribed Instruments

The *Environmental Bill of Rights, 1993* (*EBR*) provides Ontarians with the right to appeal (i.e., challenge) government decisions about certain prescribed "instruments" (i.e., a permit, licence or approval). This section provides an overview of how members of the public used their appeal rights in the 2014/2015 reporting year.

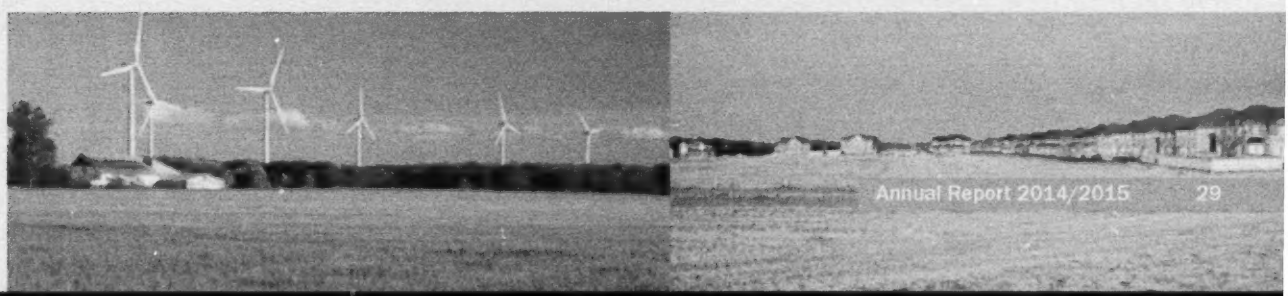
Instrument Holder Appeals

Many Ontario statutes provide individuals and companies with a right to appeal government decisions that directly affect them, such as a decision to deny, amend or revoke an instrument for which they applied or that was issued to them. These are called "instrument holder appeals." If an instrument holder appeal relates to an instrument prescribed in O. Reg. 681/94 under the *EBR*, the public has a right to receive notice of that appeal. Accordingly, the ECO posts notice of instrument holder appeals on the Environmental Registry; the ECO also posts notices on the Environmental Registry of the final dispositions of these appeals (i.e., whether the appeal was allowed, denied or withdrawn).

During the 2014/2015 reporting year, the ECO posted three notices of new instrument holder appeals on the Environmental Registry, and four notices of dispositions for appeals that were initiated in earlier reporting years (Table 1.7.1).

Table 1.7.1. Instrument Holder Appeals of *EBR*-Prescribed Instruments Initiated or Decided in the ECO's 2014/2015 Reporting Year.

Instrument Holder	Instrument	Environmental Registry #	Date of Appeal	Outcome
Trillium Recovery	Environmental Compliance Approval (waste)	011-6141	January 4, 2013	Appeal withdrawn
City of Quinte West	Approval of an Official Plan Amendment	011-5515	June 14, 2013	Appeal withdrawn pursuant to settlement agreement
ML Ready Mix	Environmental Compliance Approval (ECA)	011-7505	October 4, 2013	Original appeal withdrawn pursuant to settlement agreement (amended ECA appealed on August 22, 2015)
2157536 Ontario Inc.	Environmental Compliance Approval (air)	011-7964	February 28, 2014	Appeal withdrawn
1336518 Ontario Limited, operating as Clearblu Disposal Services	Environmental Compliance Approval (air)	011-5286	September 29, 2014	Appeal withdrawn
Sault Ste. Marie North Planning Board	Approval of an Official Plan Amendment	012-0980	September 15, 2014	Not decided as of March 31, 2015
Regional Municipality of Niagara	Approval of an Offical Plan Amendment	012-1541	October 16, 2014	Not decided as of March 31, 2015



Third Party Appeals

The *EBR* expands the basic appeal rights granted to instrument holders by allowing members of the public ("third parties") to apply for "leave" (i.e., permission) to appeal ministry decisions about instruments prescribed under the *EBR*. These are called "third party appeals." Ontario residents who wish to seek leave to appeal a decision must apply to the proper appellate body – usually the Environmental Review Tribunal or the Ontario Municipal Board – within 15 days of the instrument decision being posted on the Environmental Registry. Like instrument holder appeals, the public has a right to receive notice of third party leave to appeal applications. Accordingly, the ECO posts notices of third party leave to appeal applications and of the final dispositions of these appeals on the Environmental Registry.

To be granted leave to appeal, applicants must establish that they have an interest in the decision at issue. This is generally a low threshold to meet; for example, the applicant may live near the facility that holds the instrument or may have commented on the original proposal to issue the instrument. If they meet this preliminary threshold, then the applicant must satisfy the more onerous, two-part test for leave to appeal set out in section 41 of the *EBR* by successfully demonstrating that:

1. there is good reason to believe that no reasonable person, having regard to the relevant law and to any government policies developed to guide decisions of that kind, could have made the decision; and
2. the decision could result in significant harm to the environment.

If a third party is granted leave, they may then file their appeal of the decision, which will be heard and decided by the appellate body. During the 2014/2015 reporting period, members of the public sought leave to appeal two instrument decisions. The ECO also received notice of two decisions for applications initiated in an earlier reporting year (see Table 1.7.2).

Table 1.7.2. Third Party Applications for Leave to Appeal (LTA) Initiated or Decided Under the *EBR* in the ECO's 2014/2015 Reporting Year.

Instrument Holder	Instrument	Environmental Registry #	Applicant(s)	Date of LTA Application	Outcome
River Valley Developments Inc.	Permit to Take Water	011-5939	City of Guelph	February 12, 2013	Leave to appeal granted
atPlay Adventures Inc.	Environmental Compliance Approval (air)	011-8044	Claudia Unterstab	March 6, 2014	Leave to appeal granted, in part
C.H. Demill Holdings Inc.	Permit to Take Water	012-0410	Citizens Against Melrose Quarry	July 18, 2014	Leave to appeal granted
Timco Foods Ltd.	Environmental Compliance Approval (air)	012-2089	James and Laurie Muche *et al.*	October 20, 2014	Leave to appeal dismissed

Direct Right of Appeal by Third Parties

There is a separate set of rules for third party appeals of Renewable Energy Approvals (REAs) issued under the *Environmental Protection Act* (*EPA*) for solar, wind or bioenergy projects. Under the *EPA*, residents of Ontario have an automatic right to appeal a ministry decision about a REA, meaning they do not have to seek leave from the appellate body. Unlike appeals under the *EBR*, however, a REA appeal is only permitted on the grounds that engaging in the renewable energy project in accordance with the REA will either:

a. cause serious harm to human health; or
b. cause serious and irreversible harm to plant life, animal life or the natural environment.

Notices of third party appeals of REAs are posted on the Environmental Registry.

Similarly, the *Planning Act* provides a broad, direct right of appeal for third parties, which is different than the third party rights under the *EBR*. Therefore, third party appeals of prescribed *Planning Act* instrument decisions are usually made under the *Planning Act* rather than the *EBR*. Notices of such appeals are still posted on the Environmental Registry.

During the ECO's 2014/2015 reporting period, members of the public appealed 11 REAs under the *EPA* and 6 instruments under the *Planning Act* (see Table 1.7.3). The ECO also posted decision notices for ten appeals that were initiated in earlier reporting years.

Table 1.7.3. Direct Third Party Appeals of *EBR*-Prescribed Instruments Initiated or Decided in the ECO's 2014/2015 Reporting Year.

Instrument Holder	Instrument	Environmental Registry #	Appellant(s)	Date of Appeal	Outcome
Township of Amaranth	Approval of Official Plan	IF05E0001	Edelbrook Brothers Limited *et al.*	June 13, 2006	Appeal closed
Regional Municipality of Peel	Approval of an Official Plan Amendment	011-0328	James Dick Construction Ltd.	June 18, 2012	Appeal closed
City of Quinte West	Approval of an Official Plan Amendment	011-5515	Jake Talsma *et al.*	June 14, 2013	Appeal allowed in part
SP Development Limited Partnership	Renewable Energy Approval (wind)	011-8558	Doug Moseley	October 21, 2013	Appeal dismissed
Wainfleet Energy Inc.	Renewable Energy Approval (wind)	011-7796	Mikel Pitt and Skydive Burnaby Ltd.	October 22, 2013	Appeal dismissed

Table 1.7.3. (continued) Direct Third Party Appeals of *EBR*-Prescribed Instruments Initiated or Decided in the ECO's 2014/2015 Reporting Year

Instrument Holder	Instrument	Environmental Registry #	Appellant(s)	Date of Appeal	Outcome
SP Armow Wind Ontario GP Inc. operating as SP Armow Wind Ontario LP	Renewable Energy Approval (wind)	011-8557	Sharon Anne Kroeplin and Kenneth George Kroeplin	October 23, 2013	Appeal dismissed
Regional Municipality of Muskoka	Approval of an Official Plan Amendment	011-8845	Robert List and Marie Poirier	October 28, 2013	Appeal closed
wpd Sumac Ridge Incorporated	Renewable Energy Approval (wind)	011-5786	Manvers Wind Concerns; Cransley Home Farm Limited; Cham Shan Temple	December 23, 2013	Appeal dismissed
Nodin Kitagan Limited Partnership and Nodin Kitagan 2 Limited Partnership	Renewable Energy Approval (wind)	011-9127	James Fata; 2401339 Ontario Ltd.	January 3, 2014	Appeal dismissed
East Durham Wind, Inc.	Renewable Energy Approval (wind)	011-9146	Leonard Van Den Bosch	February 3, 2014	Appeal dismissed
City of Guelph	Approval of an Official Plan Ammendment	011-6805	Abode Varsity Living Inc. *et al.*	September 15, 2014	Not decided as of March 31, 2015
Jericho Wind, Inc.	Renewable Energy Approval (wind)	011-9473	Robert Lewis	April 28, 2014	Appeal dismissed
City of Ottawa	Approval of an Official Plan Ammendment	012-0809	Brigil Construction *et al.*	May 20, 2014	Not decided as of March 31, 2015
Vineland Power Inc.	Amendment to a Renewable Energy Approval (wind)	012-1988	Anne Fairfield	July 3, 2014	Appeal dismissed
Suncor Energy Products Inc.	Renewable Energy Approval (wind)	012-0630	Kimberly and Richard Bryce; the Corporation of the County of Lambton	September 5, 2014	Appeal dismissed

Table 1.7.3. **(continued)** Direct Third Party Appeals of *EBR*-Prescribed Instruments Initiated or Decided in the ECO's 2014/2015 Reporting Year.

Instrument Holder	Instrument	Environmental Registry #	Appellant(s)	Date of Appeal	Outcome
Grand Bend Power GP Inc., as a general partner for and on behalf of Grand Bend Wind Limited Partnership	Renewable Energy Approval (wind)	011-9928	Municipality of Bluewater; John Gillespie	July 14, 2014	Appeal dismissed
City of Toronto	Approval of an Official Plan Ammendment	012-0841	90 Eglinton West Limited *et al.*	July 28, 2014	Not decided as of March 31, 2015
Goshen Wind GP ULC, as a general partner for and on behalf of Goshen Wind, LP	Renewable Energy Approval (wind)	011-9473	Municipality of Bluewater; John Gillespie	August 7, 2014	Appeal dismissed
8437084 Canada Inc. operating as Port Ryerse Wind Farm Limited Partnership	Renewable Energy Approval (wind)	012-0611	William Irvin; Scott Biddle	September 4, 2014	Not decided as of March 31, 2015
Techno Logic Timber Ltd.	Approval of a draft plan of subdivision (no Official Plan in place)	011-4739	David Fulton	October 6, 2014	Appeal withdrawn
Dufferin Wind Power Inc.	Amendment to a Renewable Energy Approval (wind)	012-2738	Karren Wallace	October 20, 2014	Appeal dismissed
Niagara Region Wind Corporation	Renewable Energy Approval (wind)	012-0613	Mothers Against Wind Turbines Inc.	November 24, 2014	Not decided as of March 31, 2015
Clarington Wind Power (GP) Inc. as a general partner for and on behalf of Clarington Wind Farm LP	Renewable Energy Approval (wind)	012-0615	Municipality of Clarington; Donald Katsumi	December 22, 2014	Appeal withdrawn
City of Toronto	Approval of an Official Plan Ammendment	012-2651	Freedent Sheppard Inc.	March 31, 2015	Not decided as of March 31, 2015

Table 1.7.3. (continued) Direct Third Party Appeals of *EBR*-Prescribed Instruments Initiated or Decided in the ECO's 2014/2015 Reporting Year.

Instrument Holder	Instrument	Environmental Registry #	Appellant(s)	Date of Appeal	Outcome
Ganaraska Nominee Ltd.	Renewable Energy Approval (wind)	012-0793	Municipality of Clarington; Clarington Wind Concerns	February 13, 2015	Not decided as of March 31, 2015
Grey Highlands Nominee (No. 1) Ltd.	Renewable Energy Approval (wind)	012-0683	Douglas Edward Dingeldein	February 17, 2015	Not decided as of March 31, 2015

1.8 Use of the *EBR*'s Legal Tools

Public Nuisance Cases

In Ontario, it is possible to sue someone who unreasonably interferes with the use and enjoyment of your property; this cause of action is called "nuisance." In lawsuits relating to environmental issues, it is not uncommon for plaintiffs to claim that their neighbour's excessive noise, odour or other migrating pollution constitutes a nuisance. A "public nuisance" is a particular type of nuisance where the interference affects many people or the public at large.

Before the *Environmental Bill of Rights, 1993* (*EBR*) came into force in 1994, claims for public nuisances in Ontario generally had to be brought by, or with the permission of, the Attorney General. Under section 103 of the *EBR*, however, a person can now bring a claim without the approval of the Attorney General if they have suffered "direct economic loss or direct personal injury as a result of a public nuisance that caused harm to the environment." Section 103 of the *EBR* does not create a new cause of action (i.e., a new basis for claiming a legal entitlement), since public nuisance was already a recognized claim; rather, the provision makes it easier for Ontarians to advance such a claim by removing administrative barriers. It also specifies that the person does not have to suffer unique harm in order to receive compensation, as is the case in many other jurisdictions.

Reviewing the Use of Public Nuisance

The ECO is required to review the public's reliance on section 103 of the *EBR*. However, there is no obligation for parties who rely on section 103 in a lawsuit to notify the ECO. As a result, there is no reliable mechanism for the ECO to track the use of this legal tool. Sometimes, a party will choose to notify the ECO directly. Otherwise, the only practical way for the ECO to learn about a public nuisance claim is through a court decision. This is a problematic method of tracking cases because the vast majority of lawsuits are settled before they reach a courtroom. In those cases, there is no court decision and it is therefore unlikely that the ECO will ever know about them.

Regardless, the ECO is aware of seven cases since 1994 where public nuisance was claimed pursuant to section 103 of the *EBR*. One of these cases is a collection of claims filed by multiple individuals in 2001, all relating to the same incident (one of which is *Anderson and Anderson v. Gulf Canada Resources Limited et al.*); they were all settled. The six other cases were brought as class actions. This pattern makes sense because public nuisance claims, by definition, involve situations where numerous people are affected. These claims alleged public nuisance and other causes of action relating to pollution and damage from:

- an industrial fire (*Cotter v. Levy*);
- a municipal landfill (*Hollick v. Toronto (City)*);
- discoloured and odorous drinking water (*Wallington Grace v. Fort Erie (City of)*);

- a petroleum refinery (*Lewis and Weeke v. Shell Canada Limited and Shell Canada Products Limited*);
- a propane facility explosion (*Durling et al. v. Sunrise Propane Energy Group Inc. et al.*); and
- a nickel refinery (*Smith v. Inco*).

Under Ontario law, class actions must first get court approval (i.e., be "certified"). Certification is based on whether a class action is the most practical and appropriate way to deal with the issues raised in the case. Although the court usually considers the nature of the claims being made when making this determination, the certification decision is not a pre-consideration of the merits of the case (i.e., being awarded or denied certification does not reflect the validity of the claim itself, it only means that a class action is or is not the best way to proceed with the matter). Of the six class actions, only three made it past the certification stage of the proceeding.

Parties to two of the three class actions that advanced beyond certification settled the matter out of court. As a result, the only judgment on a claim for public nuisance is found in the case of *Smith v. Inco* (originally called *Pearson v. Inco*). In 2010, the trial court dismissed the public nuisance claim because the plaintiffs had only alleged an interference with private property rights (i.e., a reduction of individual property values), and not an interference with a public right or resource such as a lake or river. While this case went through several appeals, this decision regarding public nuisance was not part of those appeals.

In this reporting year, the ECO became aware of *Durling et al. v. Sunrise Propane Energy Group Inc. et al.*, which was commenced in 2008 and settled in 2014. No newly commenced lawsuits claiming public nuisance as a cause of action were brought to the ECO's attention during this reporting year. Although the ECO has not been alerted to any newly commenced claims for the past several years, we do not consider this to be a sign that the cause of action is not being used. Rather, it is likely that public nuisance is regularly claimed in cases alleging other environmental torts such as negligence and private nuisance. However, like all legal cases generally, most environmental cases are resolved via a settlement agreement that does not make any findings with respect to the different causes of action claimed. Further, for those cases that do proceed, it can take many years to make it to trial, especially in the case of a class action; this means there may be several years between when an action is commenced and when the court decision is released, which may be the first the ECO learns of the case. For example, *Smith v. Inco* commenced in 2001, but only reached trial in late 2009.

The Right to Sue for Harm to a Public Resource

The *EBR* gives Ontarians the right to sue any person who is breaking, or is about to break, an environmental law, regulation or instrument that has caused, or will cause, harm to a public resource. This provision creates a new cause of action (i.e., a new basis for claiming a legal entitlement).

In these cases, the *EBR* requires that plaintiffs notify the ECO so that we can publish a notice of the action on the Environmental Registry. As a result, the ECO should be aware of all cases alleging harm to a public resource pursuant to the *EBR*. While this process tells us when a case has commenced, there is no special mechanism for the ECO to learn of the outcome. As in the case of public nuisance, if a case goes to trial the decision will usually be publicly available. However, this is not a guarantee, and if an action settles or is discontinued for other reasons (as is often the case), the ECO will not have access to that information. In these cases, we depend on parties voluntarily advising us of the status of the matter.

The *EBR* requires the ECO to review the use of the right to sue for harm to a public resource. The ECO is aware of three cases where harm to a public resource was alleged. The first, commenced in 1998, is *Braeker et al. v. The Queen et al.*; this case is currently not scheduled for trial. The second, *Brennan et al. v. the Board of Health for the Simcoe County District Health Unit* was commenced in 1999 and dismissed in 2002 because the plaintiffs did not wish to continue. The third action, *Campbell et al. v. Powassan (Municipality of) et al.*, was commenced in 2002; the status of this case is unknown.

No new claims for harm to a public resource were brought to the ECO's attention during this reporting year.

Whistleblower Rights

The *EBR* provides rights to employees who experience reprisals (e.g., dismissal, discipline, etc.) by their employers for reporting environmental violations or otherwise exercising their rights under the *EBR*. Anyone who believes they have experienced such a reprisal may file a complaint with the Ontario Labour Relations Board (the "Board") and the Board may then take steps to resolve the issue.

The *EBR* requires the ECO to review recourse to the procedure for complaints about employer reprisals. However, there is no requirement that parties who rely on these provisions notify the ECO. As a result, there is no reliable mechanism for the ECO to track these cases. The only practical way for the ECO to know about a case is if a decision is posted online after it is heard by the Board. However, this method of tracking cases is unreliable.

As a result of reviewing publicly available Board decisions, the ECO is aware of a handful of cases where employees have claimed entitlement to this "whistleblower" protection under the *EBR* – there has been roughly one per year since 2005 (the earliest record the ECO has identified). Most of these cases settled before reaching a hearing, were withdrawn by the applicant, or the *EBR* component of the case was dismissed prior to a full hearing because the Board found that there was an insufficient basis for the claim (i.e., even if the applicant's account of events was assumed to be true, it did not fulfil the statutory requirements for claiming this protection under this section of the *EBR*). The ECO is not aware of any case where the Board found that an employer took reprisal action as prohibited by the *EBR*.

In the past reporting year, the ECO became aware of one case alleging employer reprisal, *Tirone v. Ontario (Ministry of the Environment)*, which was resolved by settlement in January 2015.

1.9 Education and Outreach

The Environmental Commissioner of Ontario (ECO) reaches out to the Ontario public in many ways.

Our website – www.eco.on.ca – remains the main source of information about the work of our office. We are always looking for ways to update our online presence, while ensuring that the public retains full access to our constantly growing archive of publications. In the fall of 2014, we launched a daily update page for our website. Called "ECO live," this feature helps viewers make connections between past ECO reports and current events. The public can also follow the ECO through our blog, Twitter accounts and YouTube channels. Stay tuned for more updates to the ECO's website in the coming year.

To help Ontarians use their rights under the *Environmental Bill of Rights, 1993* (*EBR*), we offered training in seminar or workshop settings in both North Bay and Hamilton in November 2014 and in Toronto in March 2015. We also offered an *EBR* training webinar tailored to the interests of Ontario cottagers, in collaboration with the Federation of Ontario Cottagers Association.

Over the 2014/2015 year, the Commissioner maintained a very busy speaking schedule, reaching out to audiences across the province. For example, then Commisioner Gord Miller spoke to environmental law experts, industry associations, First Nations groups and to university students, reflecting the broad range of interest in the work of the ECO. The Commissioner also held meetings with Members of Provincial Parliament at the Ontario Legislature in the spring of 2015 to share an overview of the ECO's most recent reports. A webinar hosted by the Sustainability Network in January 2015 also allowed the Commissioner to share key findings of our 2013/2014 Annual Report with a Canada-wide audience.

Every year, our Public Information and Outreach Officer receives a wide range of public enquiries on a variety of environmental concerns, including energy conservation and climate change, and answers questions from members of the public. During the 2014/2015 reporting year, our office responded to over 1,400 enquiries by

phone and email. Common questions were about how to use the Environmental Registry, and what the ECO has reported on a variety of topics.

The ECO is always on the lookout for new audiences, to share information about the citizen rights toolkit available under the *EBR*, and to update Ontarians on current environmental issues. The ECO is happy to offer overview presentations about the *EBR* to audiences across Ontario, including university, college and school classes, as our staff schedules and outreach budget allow. For more information, contact us at commissioner@eco.on.ca.

1.10 The ECO Recognition Award

The ECO Recognition Award recognizes the hard work of ministry staff in an initiative that benefits Ontario's environment and meets the goals of the *Environmental Bill of Rights, 1993* (*EBR*). Every year the ECO asks prescribed ministries to submit programs and projects to be considered for the award. This year, the ECO received five submissions from two ministries. The ECO has chosen not to give a Recognition Award for the 2014/2015 reporting year. This year's submissions did not meet the high standard set by projects that have received the award in the past.

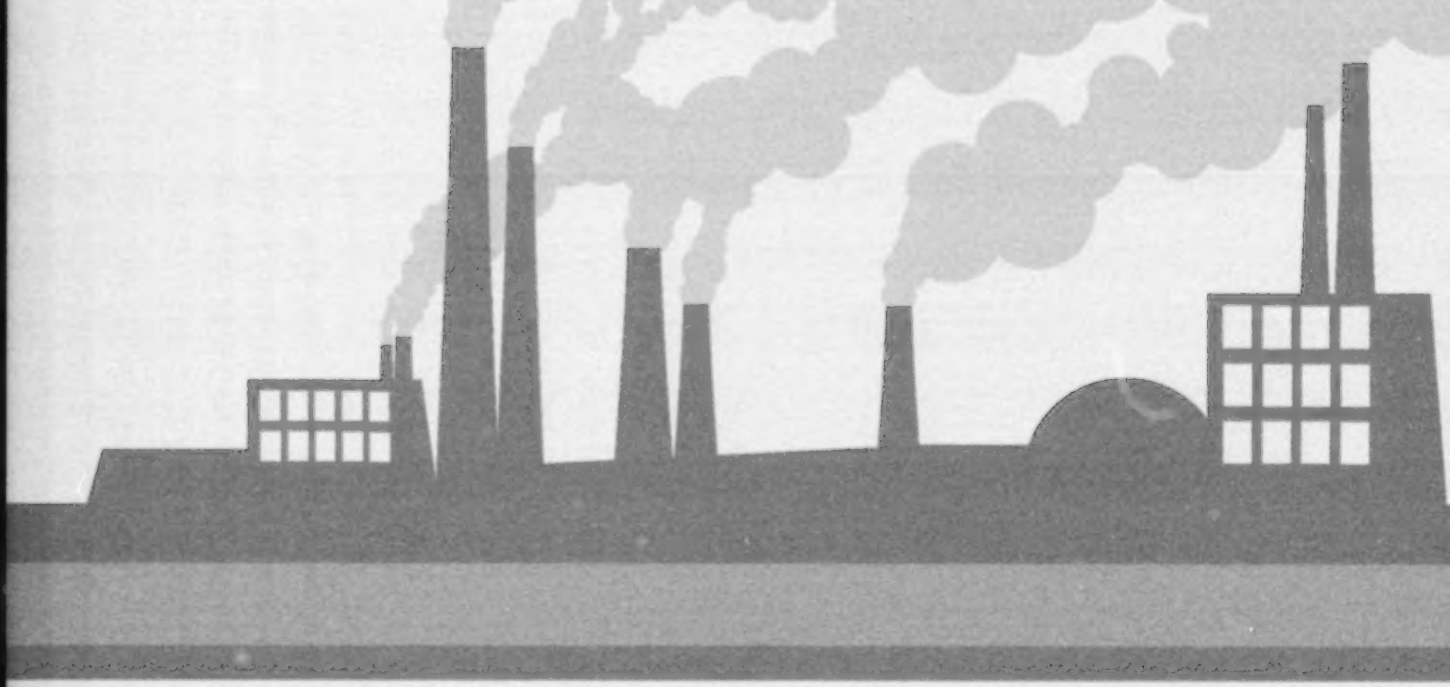
Recipients of the ECO's Recognition Award	
2015	No submission found to be acceptable
2014	Water Chestnut Management in Voyageur Provinical Park (MNRF)
2013	Wasaga Beach Provincial Park Piping Plover Program (MNRF)
2012	Algonquin Provincial Park's Waste Management System (MNRF)
2011	Bioretention Cells and Rubber Modified Asphalt at the QEW Ontario Street Carpool Lot, Beamsville (MTO)
2010	Green Power for the Summer Beaver Airport (MTO)
2009	Project Green (MOECC)
2008	Zero Waste Events at the Metro Toronto Convention Centre (MTCS)
2007	No submission found to be acceptable
2006	Southern Ontario Land Resource Information System (MNRF)
2005	Conservation of Alfred Bog (MNRF, MOECC, MMAH)
2004	Environmental Monitoring (MOECC)
2003	Ontario's Living Legacy (MNRF)
2002	Oak Ridges Moraine Strategy (MMAH)
2001	Eastern Massasauga Rattlesnake Project for Highway 69 Reconstruction (MTO)
2000	Septic System Program (MMAH)

Part 2

Reducing Pollution

Pollution of the air, water and soil is one of the longest-standing environmental concerns in Ontario, and around the world. Managing pollution requires a multifaceted approach that uses a range of strategies tailored to a number of distinct situations. Although the Ministry of the Environment and Climate Change (MOECC) carries most of the responsibility for managing pollution, other ministries such as the Ministry of Northern Development and Mines, and the Ministry of Agriculture, Food and Rural Affairs also have a role to play in certain situations.

This part of the Annual Report looks at several different types of pollution, including air and water contamination from industrial and mining operations, pesticides used in agriculture, and light pollution from office towers. The ECO reviews current strategies for reducing and managing this pollution, such as requiring companies to provide financial assurance. The discussion of these issues highlights many of the strengths of the regulatory frameworks already in place under the *Environmental Protection Act* and other laws, but also the need for the MOECC and other ministries to aggressively enforce existing requirements, and update regulations as practices change and new concerns emerge.



2.1 Making the Polluter Pay: Collecting Adequate Financial Assurance for Environmental Rehabilitation

The Hagersville tire fire – thick, black towers of toxic smoke billowed over the raging inferno for more than two weeks – still sparks many people's memories as one of the biggest environmental nightmares in Ontario's history. The fire was started by arsonists in the early morning of February 12, 1990, at a recycling facility holding a stockpile of millions of used tires. Although the Ministry of the Environment and Climate Change (MOECC) had ordered the facility's owner to undertake fire-prevention measures years earlier, the owner balked at the costs and dragged his feet in complying. The resulting blaze took firefighters 17 days to extinguish, consumed 14 million tires, and contaminated air, soil and surface water. Worse still, the over $10 million cost of extinguishing the fire and cleaning up the site fell to the government – and the taxpayers – of Ontario.

Ontario is covered with thousands of sites that, like the notorious Hagersville tire pile, could pose an environmental threat if improperly managed or, worse, abandoned. For example, there are more than 1,500 closed small landfills and thousands of former industrial and other potentially contaminated sites scattered across Ontario. If not adequately maintained, some industrial sites could pollute soil and water with highly toxic substances, like mercury, volatile organic compounds and polychlorinated biphenyls (PCBs), negatively affecting wildlife and human health. While not every site poses significant environmental risks, when polluted land and water is not remediated, the environmental and financial burden often falls to the province and public – and those remediation costs can be huge.

The Polluter Pays Principle

The internationally recognized "polluter pays principle" holds that the costs of pollution should be borne by those who cause or allow it to occur. In recognition of this important principle, the MOECC's Statement of Environmental Values affirms that the ministry "endeavours to have the perpetrator of pollution pay for the cost of clean up and rehabilitation consistent with the polluter pays principle."

Applying the polluter pays principle has several benefits. First, requiring polluters to pay their own clean-up costs encourages polluters to modify their behaviour to lessen the potential environmental impacts. Second, it transfers the financial risk of cleaning up environmental hazards from the government to the polluter, relieving the government of unwanted and unwarranted environmental and fiscal burdens.

In 2011, the Drummond Commission on the Reform of Ontario's Public Services recommended that the government revise Ontario's legislative framework to focus more on the polluter pays principle to better protect the province against the costs of environmental clean-up. Subsequently, in September 2014, the Premier mandated that the Minister of the Environment and Climate Change review Ontario's legislative framework to ensure a comprehensive approach to holding polluters responsible for their environment impacts, including putting greater emphasis on the polluter pays principle.

While the government can apply this principle retroactively by ordering polluters to pay for environmental rehabilitation after the damage occurs, securing full compensation can prove difficult when the owner of a contaminated site has gone bankrupt, cannot be located, lacks sufficient funds or otherwise refuses to pay for the clean-up. In addition, a 2012 Supreme Court of Canada decision determined that environmental protection orders usually will be subject to the normal claims process that governs bankruptcy and corporate restructuring. As a result, ministry remediation orders generally have no priority during bankruptcy proceedings, and will be treated as a regular, unsecured claim among all the other financial claims on the insolvent company's limited remaining funds.

Ontario's Financial Assurance Framework

The requirement that proponents provide upfront assurance that they can, and will, cover the costs of preventing and/or addressing future environmental damage helps ensure that adequate funds will be reliably and readily available if needed. As a result, financial assurance, such as cash, letters of credit, securities, etc., provides an important safeguard that future environmental liabilities will be addressed and paid for by the polluter.

With a few exceptions (e.g., mineral exploration and production under the *Mining Act*, and oil and gas well operations under the *Oil, Gas and Salt Resources Act)*, environmental financial assurance is generally administered by the MOECC under the *Environmental Protection Act* (*EPA*).

The *EPA* requires the proponents of the following types of sites and activities to provide financial assurance to the MOECC:

- certain private-sector landfills created or expanded after August 1, 1998;
- mobile facilities that destroy PCBs; and
- certain types of anaerobic digestion and thermal treatment (e.g., waste incineration) facilities.

The *EPA* also gives the MOECC the discretion and general authority to require financial assurance in a number of situations through an order or as a condition in an approval. The specific amount required is determined on a case-by-case basis. The MOECC's *Financial Assurance Guideline* (Guideline F-15) provides guidance to help ministry staff administer financial assurance and help regulated parties comply with requirements.

Despite these requirements and guidance, several problems have been identified with the *EPA*'s financial assurance framework over the years.

Financial Assurance is Not Required for Many Activities

As mentioned above, financial assurance is mandatory under the *EPA* for only a few types of sites and industrial sectors. The Drummond Commission observed that this subset of activities represents "a small portion of the overall risk exposure" and that "the existing legislation does not provide an effective policy framework for a robust [financial assurance] program covering all relevant industrial sectors." For many activities regulated under the *EPA*, financial assurance is only required if requested by an MOECC Director.

For several sites and activities, Directors seem to rarely use their discretion to require financial assurance. For example, waste management systems, which include systems that collect and transport hazardous waste, asbestos waste and liquid industrial waste, have the potential to contaminate soil and water through accidental spills. But of the 270 Environmental Compliance Approvals the MOECC issued for waste management systems between November 2011 and April 2015, only 14 of them (5 per cent) included a requirement to submit financial assurance.

Photo credit - Ted Brellisford, The Hamilton Spectator

Likewise, industrial and private sewage works, which include sewage and stormwater treatment systems for industrial facilities, quarries, campgrounds and other businesses, have the potential to release sewage or contaminated water into the environment if abandoned or operated inadequately. Of 133 approvals issued for industrial and private sewage works that the MOECC posted on the Environmental Registry during the past six years, none required financial assurance (although the MOECC amended three approvals during this time to subsequently require financial assurance). (For more examples, see Section 4.1 of the Supplement to this Annual Report.)

The Auditor General of Ontario reviewed the MOECC's hazardous waste management program in 2007; of the approvals reviewed, only 60 per cent of hazardous waste management receivers and carriers were required to provide financial assurance. In response to this audit, the ministry reported that it had started requiring every hazardous waste receiver to provide financial assurance and every hazardous waste carrier to hold $1 million in liability insurance. The ECO notes, however, that requiring a waste carrier to have liability insurance for a vehicle is not the same thing as requiring financial assurance to ensure that the costs of environmental clean-up will be covered.

Required Financial Assurance is not Always Promptly Provided

Even when financial assurance is required of a proponent (either by law, as a condition of an approval, or through a Director's order), it isn't always promptly provided.

In 2007, the Auditor General sampled the applications of hazardous waste receivers and carriers who had been required to provide financial assurance to the MOECC. Of these, the Auditor General found that only 30 per cent had provided financial assurance by the required date, while $3.4 million in financial assurance was outstanding for more than 6 months from 24 approval holders. Similarly, in 2010, the Auditor General reported that $20 million in financial assurance was outstanding for non-hazardous waste management sites, facilities and systems.

To address the issue of overdue and uncollected financial assurance, the ministry enhanced its computer system in 2009 to automatically track when financial assurance is overdue. Shortly after, the MOECC also began producing monthly reports on outstanding financial matters to ensure that field staff are following up with approval holders. These measures have reportedly improved the MOECC's ability to monitor and collect outstanding financial assurance; since the introduction of the automated tracker, the ministry's financial assurance balance has reportedly increased from $181 to $418 million.

Despite these improvements, it can still take years for the MOECC to secure requested financial assurance. As of March 31, 2015, 91 companies owed the ministry a total of more than approximately $15 million in overdue financial assurance. For example, the owner of one waste disposal site has owed $1 million in financial assurance for three years, and another has owed approximately $743,000 for nine years – and yet they have continued to operate.

Furthermore, in several instances, despite the ministry *proposing* to require financial assurance, the ministry has failed or been slow to follow through. Over a decade, the MOECC has proposed – but apparently refrained from – requesting a total of more than $6.3 million in financial assurance to conduct remedial or preventative work, including financial assurance for: assessing the risk of chlorinated volatile organic compound contamination in soil and groundwater; implementing risk management measures (e.g., groundwater monitoring); and capping mercury- and PCB-contaminated sediments.

DELAYED REQUEST FOR FINANCIAL ASSURANCE FOR AN UNAPPROVED WASTE DISPOSAL SITE

In 2007, the Ministry of the Environment and Climate Change (MOECC) learned that approximately 459,000 m^3 of wood residue had been deposited without ministry approval at a closed sawmill in Opasatika. Because leachate from wood residue can adversely affect the environment, in November 2009, the ministry proposed ordering the site's owner, Tembec Industries Inc., to develop a plan to remove the woodwaste and to submit financial assurance to cover the costs of closing the site and carrying out post-closure activities. However, the MOECC didn't issue the order until July 2014 – nearly five years later.

For a more detailed review of this decision, please refer to Section 1.2.1 of the Supplement to this Annual Report.

Financial Assurance Doesn't Always Fully Cover Costs

Even when financial assurance is secured, the amount doesn't always fully cover the costs of rehabilitation. This can occur for several reasons.

First, financial assurance estimates are initially calculated by proponents, and the *EPA* does not require that this calculation cover the entire cost of cleaning up a site and undertaking all the necessary environmental measures. Second, as acknowledged by the MOECC, "because the financial assurance supplied is based on estimates and not every eventuality can be anticipated, the calculated sum may not be adequate to cover the actual cost of a clean-up at the time a facility is closed." For example, although the ministry accepted $3.4 million in financial assurance in 2004 to clean up harmful chemical by-products manufactured by General Chemical Canada Ltd. at its Amherstburg facility, final clean-up costs were as high as $64 million.

In its 2007 audit of the MOECC's hazardous waste management program, the Auditor General found no process for regularly reassessing the amount of financial assurance required from a given proponent. In response, in 2008 and 2009 the ministry: developed guidance for calculating more accurate financial assurance amounts; reviewed the approvals of every hazardous waste receiver to assess the adequacy of financial assurance; required that the financial assurance for all privately owned hazardous waste sites be reassessed annually; and applied its automated financial assurance tracker to non-hazardous waste approvals.

Despite these significant improvements, there are still some gaps in the MOECC's regulatory and policy framework for ensuring that adequate financial assurance is secured:

- Although $100,000 has repeatedly proven insufficient to cover the costs of cleaning up PCB spills, the MOECC continues to require PCB haulers to provide just $100,000 in financial assurance.
- The MOECC has yet to implement changes proposed in 2010 that would have made it easier to hold parent companies responsible for clean-up costs where financial assurance is inadequate or absent.
- While its automatic tracker allows the MOECC to better monitor financial assurance needs, as of January 2015, re-evaluations were overdue for at least 21 approvals – one for over a decade.

2.1.1 Financial Assurance for Mining Projects

Financial assurance is important not just for activities under the *Environmental Protection Act*, but also for many other activities, including mineral exploration and production under the *Mining Act*. Unfortunately, the government's financial assurance framework for mining activities also has some problems.

Figure 2.1.1.1. A 2011 photograph of the Kam Kotia Mine site – one of the worst environmental disasters in Ontario's history. The site was abandoned by its owner in 1972, leaving behind 6 million tonnes of acidic waste that has polluted waterways and damaged more than 500 hectares of habitat. It is expected to cost the provincial government at least $79.1 million to clean up the site. For information on the Kam Kotia Rehabilitation Project, see Part 5.4 of the ECO's 2012/2013 Annual Report. (Photo credit: Ryan Anderson).

Uncollected Financial Assurance

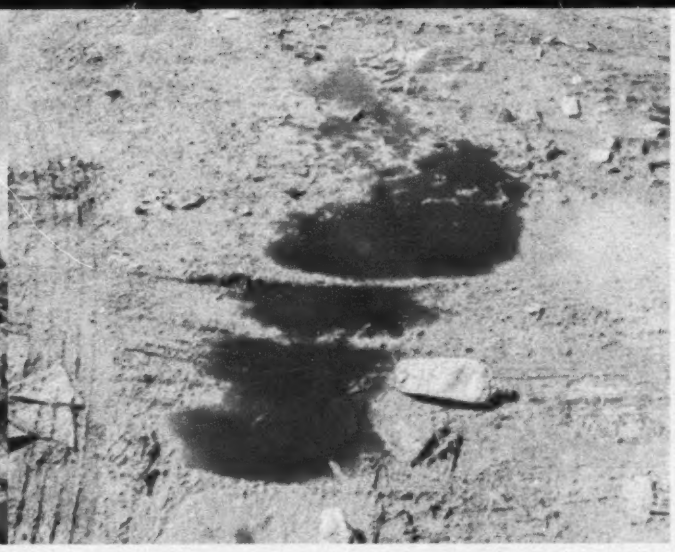
Before starting advanced exploration or mine production, mining proponents must submit to the Ministry of Northern Development and Mines (MNDM) a closure plan with financial assurance for anticipated rehabilitation costs. Despite this legal requirement, several sites have gone without financial assurance for years, putting the government at risk of having to pay for site closure and clean-up (see the Auditor General of Ontario's 2005 Annual Report). For example:

- Although the ministry has repeatedly ordered Marshall Minerals Corp. to file a closure plan for the idle Carshaw-Malga Mine and Mill, and identified several hazards in 2002 that required rehabilitation, the MNDM still has not secured financial assurance for this site.
- In 2005, the MNDM issued a Director's Order to Extender Minerals to submit a closure plan with financial assurance for the Ryan Lake Mine, a historical mine site where the company was operating a barite processing facility. When Pacific Comox Resources Ltd. acquired the property in 2006, it agreed to submit a closure plan. To date, the MNDM has not received a closure plan with financial assurance.
- It took the MNDM over a decade to obtain a closure plan with adequate financial assurance for the Ross Mine in Holtyre, a site containing several hazards, including transformers suspected of leaching hazardous chemicals. (For more information, see Section 1.18 of the Supplement to the ECO's 2011/2012 Annual Report.)

As of July 2015, closure plans with financial assurance were absent for at least five mining projects.

Insufficient Financial Assurance

Even when financial assurance is provided, the amount isn't always sufficient to cover costs (see the Auditor General's 2005 Annual Report). For instance, in July 2012, the MNDM received $995,000 in financial assurance from Timminco Ltd. for its mining operations in Haley, Renfrew County. But the actual rehabilitation costs are now estimated as closer to $3.5 million because of hydrocarbon-contaminated soil discovered at the site – something the ministry was unaware of until after the company applied for bankruptcy.



Part of the problem is that the MNDM has no formal process for regularly reviewing the adequacy of collected financial assurance. In 2000, the MNDM revoked a regulation that previously required proponents to report annually on site rehabilitation, monitoring and any changes to the project. Concerned about companies overseeing their own rehabilitation progress, the ECO recommended in our 2000/2001 Annual Report that the ministry reintroduce this annual reporting requirement. While companies must now notify the MNDM of any changes that may affect the adequacy of a closure plan, and the ministry has established an inspection program with the goal of inspecting every site with a closure plan every five years, neither the *Mining Act* nor its regulations have been changed to establish a formal process for regularly reassessing the sufficiency of the financial assurance provided.

Less Reliable Forms of Financial Assurance

Generally there is little risk associated with accepting "hard" forms of financial assurance (e.g., cash, letters of credit, surety bonds or letters of guarantee). However, concerns have been raised that alternate ("softer") forms may be inadequate to cover rehabilitation costs should a company become unable or unwilling to fulfil its clean-up responsibilities.

In particular, the Auditor General criticized the MNDM for accepting financial assurance in the form of a company passing a corporate financial test, arguing that it "essentially amounts to self-assurance." The corporate financial test assesses whether a proponent can cover the costs of remediation at the time of the test. However, it does not guarantee that the funds will be provided if needed in the future. While it appears that no other Canadian province accepts the corporate financial test as a form of financial assurance, 40 per cent ($654 million) of the financial assurance the MNDM held as of March 31, 2015 was in this form.

ECO COMMENT

The Drummond Commission recommended that the government emphasize the polluter pays principle and use financial assurance in order to protect the province against financial liabilities. From the ECO's perspective, financial assurance more importantly protects the province against environmental risks, especially since many abandoned sites are not promptly rehabilitated by the government. Obtaining upfront assurance that potential environmental damage will be rehabilitated minimizes threats to wildlife, water, air and human health. In addition, making polluters pay creates an incentive to reduce pollution and minimize environmental harm.

The MOECC has some financial assurance requirements in place, and its financial assurance framework has been strengthened in some ways in recent years. Still, there are many activities and sites for which the government requires no financial assurance. Moreover, even when required, adequate financial assurance is not always promptly collected, putting the government and the public at risk of environmental and financial liabilities.

The MOECC is undertaking an internal, comprehensive review of its financial assurance program in support of its overall objective of minimizing liability and strengthening the polluter pays principle. The MOECC states that the review will examine enhancements to the existing program framework and alternative ways of delivering the financial assurance program. According to the ministry, the first phase of the review has identified recommendations related to: mandatory versus discretionary financial assurance; the methodology for determining the sufficiency of financial assurance; different forms of financial assurance; and the expansion of financial assurance to sites and facilities not currently covered by legislative instruments. The ECO is optimistic about the MOECC's review, and encourages the ministry to consult the public and stakeholders on changes to improve the coverage and effectiveness of its financial assurance program.

For more information, please refer to Section 4.1 of the Supplement to this Annual Report.

Comments from the MOECC

The ministry appreciates the ECO's recognition that the financial assurance framework has been strengthened over time, and that significant improvements have been made in both administrative systems and guidance.

As the ECO acknowledges, the ministry's automated financial assurance monitoring system has allowed for improved identification of non-compliance and has contributed to the collection of 97% of the currently required amount. The ministry commits to continuous improvement in obtaining outstanding financial assurance amounts and re-evaluations in a timely manner.

The Drummond recommendation noted that there are a range of appropriate financial tools that the ministry could use to place greater emphasis on prevention and the polluter-pay principle. The goal of applying these tools is to ensure that public funds are not used to address the environmental problems caused by businesses.

Financial assurance was noted as one of many financial tools that could be used to address this risk; however it may not be the most appropriate one to use under certain circumstances. That is why the ministry is carefully reviewing a range of approaches that will expand fiscal accountably to a broader range of sectors and businesses in a manner that is appropriate to the level of potential environmental risk.

As part of this review, the ministry is looking at finance assurance models in other jurisdictions to inform any next steps.

The goal is to protect the environment and Ontario residents from contamination, starting first with addressing the environmental risks posed by contaminated sites, while reducing the fiscal risk to the province.

Comments from the MNDM

We would like to clarify that none of the five identified properties are currently in operation, neither have they operated since the change in the legislation in 1991. MNDM continues to work with the proponents of these sites to rehabilitate any existing mine hazards. In cases where the proponent has failed to take any action MNDM has followed our process through to completion, including prosecution in court. To attempt to increase the likelihood that a successful prosecution could result in the filing of a closure plan, the *Mining Act* was amended in 2009 to provide for higher penalties and to allow the convicting court to order a number of steps be taken, including the requirement to file a closure plan.

Aboriginal consultation is required prior to making changes on a site. The Notice of Material Change ensures that consultation is taking place where required for proposed changes to a mine site.

MNDM has also introduced new procedures intended to ensure that every site with a closure plan be inspected every five years. This will allow the Ministry to monitor for unreported changes to the site and, where appropriate, require that the closure plan can be updated.

MNDM is legally obligated to accept financial assurance in the form of a corporate financial test as it is one of the acceptable listed forms of financial assurance in the *Mining Act*. The test is not a "one time test." MNDM monitors the company's bond rating on a weekly basis. If the bond rating drops below the criteria specified in the *Mining Act*, MNDM will take the required steps as indicated in the legislation to obtain an alternative form of [financial assurance].

2.2 Systemic Pesticides: A Primer

Introduction

Neonicotinoid pesticides, often called "neonics," have received a lot of attention over the past few years. There are concerns that their use has contributed to the greatly increased mortality of honey bees managed by beekeepers, both in Ontario and worldwide. In agriculture, neonicotinoids are used to protect crops against destructive insects, and are applied as a coating on seeds, as a liquid sprayed on plants or soil, or as granules spread on soil. Neonicotinoids also have a range of uses beyond agriculture, including: bait for domestic pests (e.g., roaches and ants); timber injections to control termites; tree injections to protect against herbivorous insects; and topical applications on pets to control parasites.

The ECO reported on neonicotinoids and the threat they pose to pollinators in Part 2.2 of our 2013/2014 Annual Report. However, as important as honey bees may be, this issue may have much broader implications. Scientific evidence is mounting that neonicotinoid pesticides, as a group, are affecting many other species in many types of ecosystems.

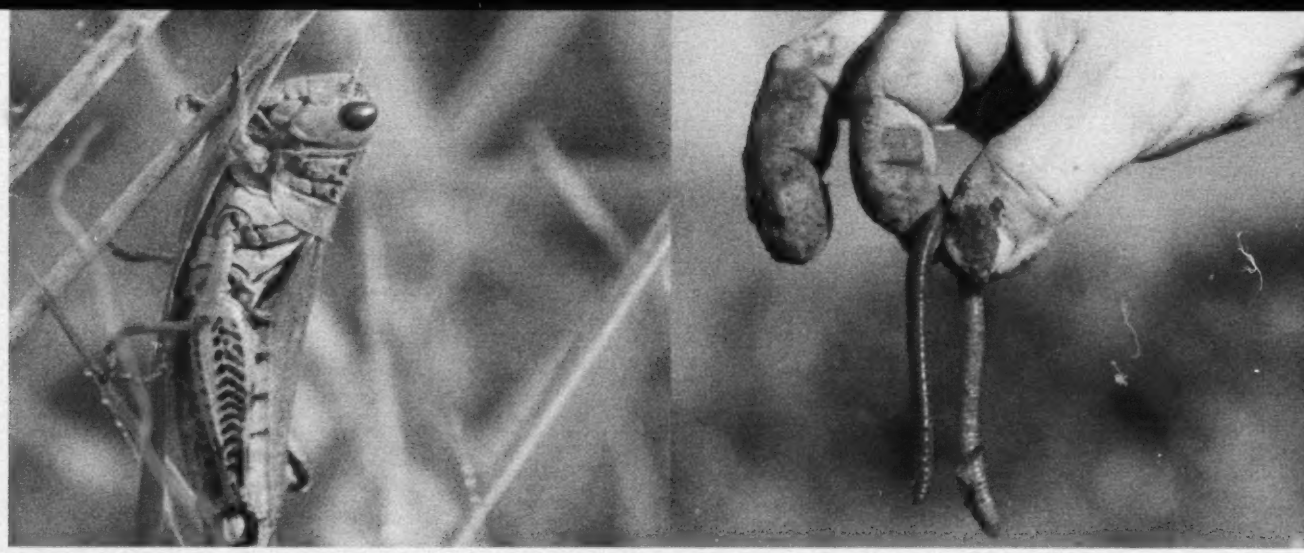
The Nature of Neonicotinoids

The family of neonicotinoid insecticides share several important characteristics. The key similarity is that once absorbed (usually through the roots), they spread throughout the entire plant, a characteristic that puts them in a technical category known as "systemic pesticides." Other similarities among the neonicotinoids include: moderate to high solubility in water; high levels of invertebrate neurotoxicity; and persistence in soil and in plant tissues. The combination of these four characteristics makes these chemicals extremely effective in controlling insect pests.

The environmental concerns with neonicotinoid pesticides arise from these same characteristics. Their neurotoxicity is not limited to agricultural pests; they affect many invertebrates and, to a lesser degree, some fish and mammals. Moreover, their solubility makes them very mobile in ecosystems and their persistence allows them to accumulate in non-target plants, soils and water. Growing scientific research has shown that these mobile, persistent and toxic chemicals may be affecting ecosystems by reducing populations of many non-target species.

A number of earlier non-systemic pesticides (such as DDT, chlordane, and other organochlorines) were lipophilic (i.e., they are attracted to and dissolve in fats) and tended to accumulate in the bodies of predators, such as birds that ate contaminated insects. The impacts of these bioaccumulations were magnified at the top of the food chain, causing major environmental problems that led to bans and restrictions on their use. Because neonicotinoid pesticides are hydrophilic (i.e., they are attracted to and dissolve in water), they have low potential for bioaccumulation. Until recently, the hydrophilic trait has been considered one of their major advantages.

The first classes of insecticides that included systemic products, organophosphates and carbamates, were introduced in the 1950s and 1960s, respectively. Although these chemicals are still used worldwide, they have increasingly been supplanted by neonicotinoids. Imidacloprid, the first neonicotinoid, was introduced to the marketplace in the early 1990s. Seven neonicotinoid compounds are currently available on the global market and most, but not all, are registered in Canada. Registered products of environmental concern include thiamethoxam and clothianidin. The wide range of uses for these products, combined with their reduced toxicity to



mammals and the developing resistance of insect pests to the earlier systemic insecticides, resulted in the neonicotinoids' rapid growth in market share; they are now the most widely used insecticides in the world.

Exposure Routes

There are four common environmental pathways travelled by neonicotinoid pesticides (see Figure 2.2.1).

Air: Dust from Planting Equipment

The dust generated during the planting of neonicotinoid-treated seeds may contain high concentrations of pesticides, enough to kill some insects directly via contact during flight. To date, this exposure route has received the most attention, specifically in relation to its potential impact on bees. For example, one study showed that honeybees can collect up to 60 times the lethal dose of pesticide residues on their bodies from foraging flights during seed-planting. In addition, the contaminated dust eventually settles out on various surfaces and is then washed into soil or surface water. The significance of the planting dust exposure route to other pollinators and non-target invertebrates has not yet been adequately studied.

Soil: High Inputs, Slow Degradation

The bulk of neonicotinoid insecticide applied to seeds is not taken up by the crop and remains in the soil (80 to 98 per cent). Eventually these residues degrade into less harmful constituents, but studies show that this process can take years. During this time, soil organisms, such as microbes, micro-arthropods and worms, may be exposed to levels that can have negative impacts.

Water: Groundwater and Surface Water

Although neonicotinoids may bind to some extent to soil particles, the combination of their solubility and persistence means that that the majority of soil residues eventually leach into surface water or groundwater. Residues can also reach water via accidental spillage, overspray, spray drift and run-off from lawns and golf courses. A study of 136 Saskatchewan wetlands, conducted from 2012 to 2013, showed measureable concentrations of neonicotinoids in the majority of water samples, suggesting that these chemicals are both persistent and mobile in ecosystems.

Plants: Target and Non-Target Vegetation

Once taken up by a target plant (the crop), the desired protection from pests is achieved. The plant retains the pesticide in its sap, usually in concentrations of about 5 to 10 parts per billion (ppb), as well as in its leaves, flowers, pollen and nectar. These small concentrations are sufficient to protect crops from agricultural pests; however, the crop is also an exposure route for any other organism that ingests any part of a treated plant. Because these pesticides are mobile in the environment, (i.e., via dust from planting, leaching from soil into water, etc.), they may also be taken up by local, non-target plants. This could result in further exposure to pollinators, as well as to other insects. One study found that dandelions at the edges of farm fields had levels (9 ppb) similar to those found in treated crops. However, data on uptake by non-target plants is scarce and an assessment of the ongoing impact of this exposure route is not yet available.

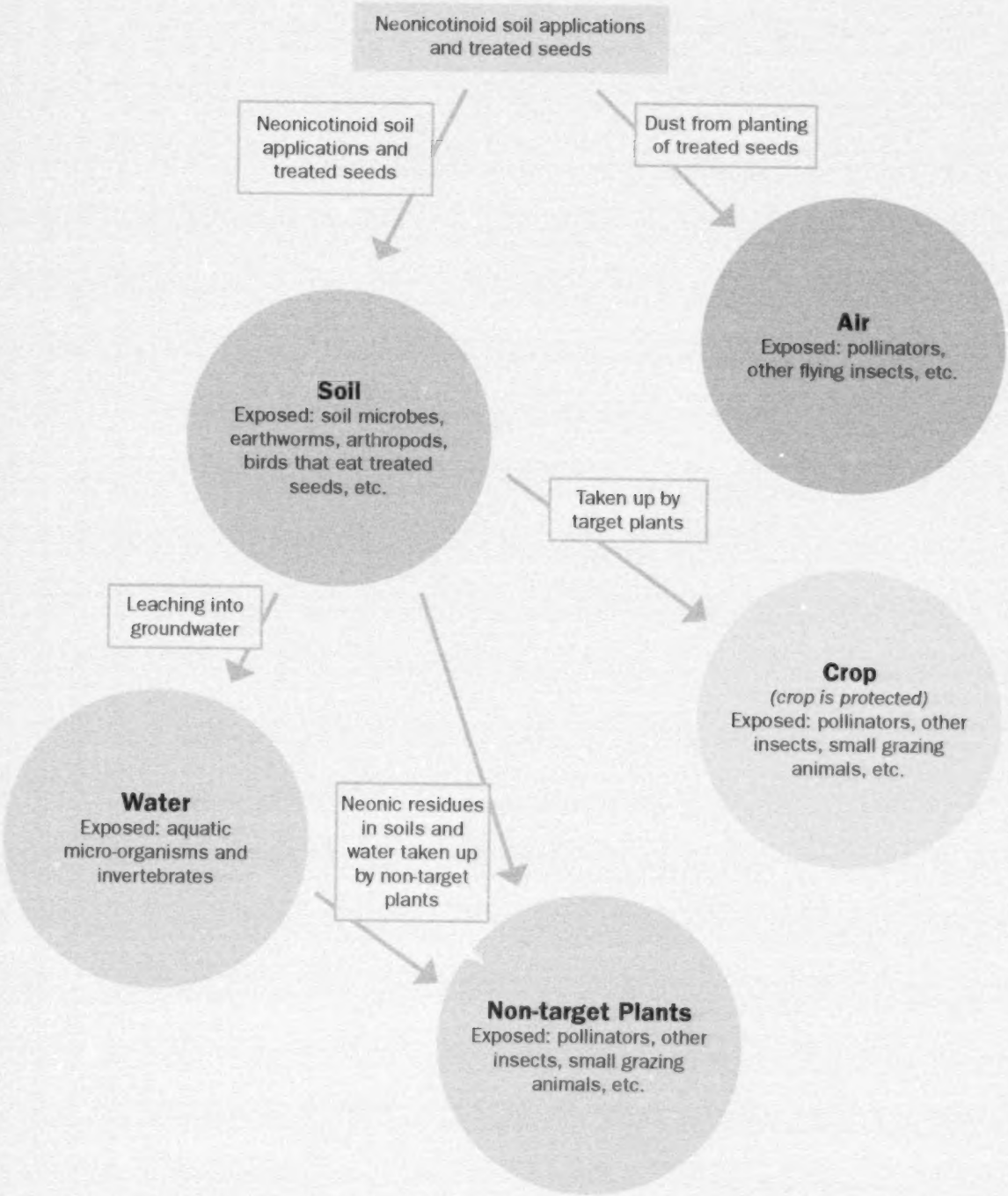

Neonicotinoid soil applications and treated seeds
Neonicotinoid soil applications and treated seeds
Dust from planting of treated seeds
Air
Exposed: pollinators, other flying insects, etc.
Soil
Exposed: soil microbes, earthworms, arthropods, birds that eat treated seeds, etc.
Taken up by target plants
Leaching into groundwater
Crop
(crop is protected)
Exposed: pollinators, other insects, small grazing animals, etc.
Water
Exposed: aquatic micro-organisms and invertebrates
Neonic residues in soils and water taken up by non-target plants
Non-target Plants
Exposed: pollinators, other insects, small grazing animals, etc.

Figure 2.2.1. Exposure routes for non-target organisms. The box at the top represents the main sources of neonicotinoids: soil applications and treated seeds. These types of applications comprise 60 per cent of the use of neonicotinoid pesticides worldwide.

Effects on Non-Target Organisms

The effects of neonicotinoid pesticides on life forms can be described as direct or indirect, and the former as either lethal or sub-lethal. Direct effects are a result of exposure to a chemical, and can include death, reproductive effects, behavioural changes (e.g., impaired foraging ability), and compromised immunity. Indirect effects occur through a series of two or more steps; for instance, a pesticide may reduce or eliminate the main food source of an organism, resulting in starvation or weakened survival ability.

Acute lethal effects result in death within a relatively short period of time, such as hours or days. Risk assessments (a common tool for regulatory approval) usually measure the "LD50" of a toxic agent, which is the lethal dose that will kill 50 per cent of the population of a specific organism within a specified time (for example, the time period used for terrestrial vertebrates is 96 hours). Sub-lethal (chronic) effects, which are harder to identify, do not result in death in the short term, but can result in mortality over longer periods by impairing vital functions. These effects include lowered immunity (allowing diseases to increase in both frequency and severity) or altered behaviour (such as when bees lose their ability to navigate).

Toxicity is a measure of the degree to which a substance is harmful to an organism. Neonicotinoids are extremely toxic to invertebrates, with fairly low-level exposures (5 to 10 ppb in plant sap) resulting in quick death. Until recently, however, it was assumed that lower concentrations, typical of those found in the general environment, were not toxic. A growing body of evidence now suggests that neonicotinoids are toxic at very low doses: sub-lethal effects have been identified for a variety of organisms at low, field-realistic levels of exposure.

In addition, some scientists have found that, contrary to expectations, the relationship between the concentration of neonicotinoids and the amount of exposure time required to achieve a lethal dose is not strictly linear; this means that less time is required to produce a lethal dose at very small exposures than would be expected if the relationship were linear. As such, chronic exposure to very low levels of neonicotinoids could be much more dangerous than previously believed. Further, the toxic effects of neonicotinoids, particularly on arthropods (e.g., insects, spiders, crustaceans), are both irreversible and cumulative, amplifying the risk.

Effects on Soil Organisms

Soil organisms, which range from micro-organisms (such as bacteria and fungi) to larger invertebrates (such as arthropods and earthworms), are crucial to a wide range of ecosystem services. The evidence to date shows that neonicotinoids, at the levels commonly found in agricultural soils (e.g., areas of intensive corn and soybean cultivation), affect many soil organisms. These effects range from reduced feeding behaviour to mortality. Of greatest concern at this time is the potential impact of neonicotinoids on soil invertebrates, including beetles, ants and earthworms. Exposed beetles exhibit abnormal behaviour that increases their vulnerability to predators, while earthworms are highly susceptible to a reduction in reproductive success when exposed to low concentrations of neonicotinoids in the soil.

Effects on Aquatic Invertebrates

Aquatic invertebrates, such as freshwater snails, appear to be vulnerable to both low-level long-term, and high-level short-term exposures to neonicotinoids. The major sub-lethal impacts identified to date are reduced feeding behaviour and impaired growth and mobility. This may be causing a population decline for these organisms in some ecosystems; a study in the Netherlands found a significant negative relationship between invertebrate abundance and imidacloprid concentrations in surface waters. Another review looked at data from 29 studies and the exposure levels in surface waters in 9 countries and concluded that typical neonicotinoid concentrations in surface waters worldwide are "well within the range where both short- and long-term impacts on aquatic invertebrates are possible over broad spatial scales."

Effects on Pollinators

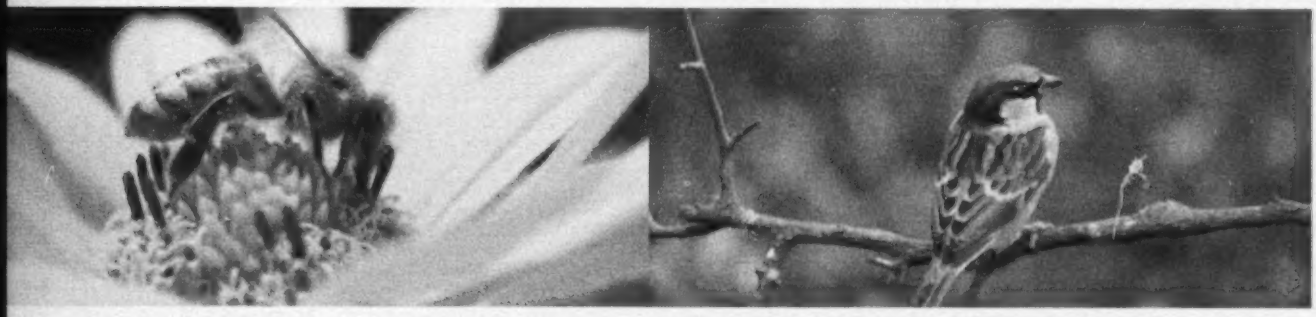
Pollinators are highly vulnerable to neonicotinoid residues. Studies on honey bees, for instance, have shown that exposure to neonicotinoids can have an array of negative effects, including: impaired memory and brain metabolism; weakened immunity; and impaired orientation. The neonicotinoids' impact on wild bees has also

been studied, showing similar results. For example, colonies of bumble bees exposed to field-realistic levels of neonicotinoids produced 85 per cent fewer queens than controls. In another study, similar levels of exposure reduced brood production by one-third. Finally, red mason bees exposed to sub-lethal levels of neonicotinoids experienced an almost 50 per cent reduction in offspring and a male-biased offspring sex ratio.

Effects on Vertebrates

Birds, reptiles, fish, amphibians and mammals are generally less vulnerable to the direct impacts of neonicotinoids than are invertebrates. However, toxicity to vertebrates varies widely between the different pesticides. For instance, imidacloprid has been classified as highly toxic to a particular quail species, while clothianidin is classified as only moderately toxic to that species. Toxicity for the same pesticide also varies between species: imidacloprid is classified as practically non-toxic to the American toad or bluegill sunfish, for instance, but is considered moderately toxic to rainbow trout fry and highly toxic to the grey partridge.

Imidacloprid is highly toxic to many species of birds and a single treated corn seed can provide a lethal dose; in the case of clothianidin or thiamethoxam, a few seeds are needed to produce a lethal effect. Although the potential also exists for vertebrates to be affected sub-lethally through chronic exposure, this possibility has not yet been sufficiently studied.



Finally, indirect impacts on vertebrate populations may arise, most notably through depletion of food sources. A 2014 study from the Netherlands showed that bird populations in that country vary according to the level of imidacloprid in local surface waters. Insectivorous bird populations drop by 3.5 per cent annually in areas where the concentration of that pesticide in surface waters exceeds 0.02 ppb. Although such studies only show associations and do not prove causation, when combined with current knowledge of the potential mechanisms involved (as described above), they provide strong evidence of significant indirect effects.

ECO COMMENT

The evidence that neonicotinoids have the potential for disrupting food webs is compelling. Adverse effects have been identified for a wide variety of organisms, all of which play important ecological roles. For instance, microarthropods break down organic residues and recycle the nutrients in freshwater ecosystems, ensuring clean water as well as feeding aquatic plants. Earthworms play a vital role in soil ecosystems: they aerate, contribute to good soil structure and stability, and break down organic residuals to release nutrients for plants. Similarly, pollinators are key members of the terrestrial ecosystems that provide us with food, fuel and fibre. All of these creatures are also food sources for fish, birds and other higher-trophic-level organisms. The impacts of neonicotinoids and similar insecticides could have cascading impacts on food webs and ultimately, on their vital ecosystem functions.

A growing body of research shows that neonicotinoids pose a significant risk for invertebrates; they may also pose a direct risk for birds and other vertebrates. In addition, the potential exists for indirect effects resulting from food-chain impacts and possible ecosystem imbalances. Some scientists have raised concerns about

possible connections between neonicotinoid use and observed decreases in various wildlife populations, suggesting that immune suppression by neonicotinoids may be a significant contributing factor.

The ECO believes that the many gaps in knowledge that still exist on this subject need to be addressed promptly. Ontario has committed to both reducing threats to biodiversity and improving knowledge about biodiversity. Given that commitment, the ECO encourages the Ministry of the Environment and Climate Change to fund independent research examining neonicotinoids, and their effects on food chains and ecosystems from an Ontario perspective.

The ECO is pleased that the MOECC is beginning a multimedia monitoring study in 2015 to benchmark neonicotinoid concentrations in the environment. The ECO had recommended such monitoring of soil, waterways and wild plants in our 2013/2014 Annual Report. Reporting those monitoring results on an annual basis will be important in keeping the public informed about concentration trends over time and regional exposure patterns.

For more information, please refer to Section 4.2 of the Supplement to this Annual Report.

Comments from the MOECC

Pollinators, including bees, birds, and butterflies, play a crucial role in agriculture and our ecosystem. Over the last eight years, Ontario beekeepers have experienced unusually high over-winter losses of honey bees, reaching 58 percent following the winter of 2013-14.

This is why the Government of Ontario is protecting pollinators through a multi-ministry Pollinator Health Action Plan that will address the four main stressors that pollinators face: pesticide exposure; habitat and nutrition; disease, pests and genetics; and climate change and weather.

The ministry acknowledges the systemic nature of neonicotinoid insecticides (NNI) and potential exposure routes that may be impacting managed and wild pollinators described in the ECO Annual Report. Therefore, acting with precaution, amendments were made to Ontario Regulation 63/09 under the Pesticides Act, effective July 1, 2015. This initiative's goal is a reduction in the number of acres planted with NNI-treated corn and soybean seeds by 80 percent by 2017.

Since 2012, the ministry has carried out environmental monitoring programs looking at NNI in surface and groundwater in agricultural areas. The ministry has also enhanced its monitoring to include food/foraging flowers, bee water sources and soil from twelve sites in Southwestern Ontario from locations of both high bee mortality and low bee mortality.

We continue this enhanced monitoring to better understand the presence of NNI in Ontario's natural environment.

Comments from the OMAFRA

Ontario is taking action to strengthen pollinator health to support healthy ecosystems, a productive agricultural sector, and a strong economy. As of July 1, 2015, Ontario was the first Canadian province to focus on improving the health of bees, other pollinators and the environment by having regulations in place to restrict the use of neonicotinoid-treated corn and soybean seed. The government's goal is to reduce the number of acres planted with neonicotinoid-treated corn and soybean seed by 80 per cent by 2017. Farmers will be able to use treated seed where there is a demonstrated need. Ontario is developing a comprehensive Pollinator Health Action Plan which will address multiple stressors, including changes in land use, climate change/weather, agrochemicals, pest/pathogens and beekeeper management practices, and builds on work already taken to improve pollinator health. Under the New Directions Research Program, OMAFRA awarded $1 million in 2014 to fund projects investigating stressors to pollinator health and the effects of neonicotinoids on honey bees. The management of honey bee health in Ontario is monitored by regulations under the *Bees Act*. Provincial ministerial partners will

undertake monitoring to support the Pollinator Health Action Plan's success. Enhanced monitoring and surveillance of honey bee health by OMAFRA's Apiary Program in 2015 will ensure sufficient baseline statistical data is collected to allow reporting on progress of the Action Plan, once developed.

2.3 *Toxics Reduction Act* Update: Living List Framework

Since 2010, the Ontario government has required certain facilities to track the production, use and discharge of toxic substances, and to plan for their reduction, under the *Toxics Reduction Act, 2009* (*TRA*). The Act aims "to prevent pollution and protect human health and the environment by reducing the use and creation of toxic substances; and to inform Ontarians about toxic substances."

The *TRA* governs toxic substances prescribed in O. Reg. 455/09 (General), made under the Act. The regulation currently prescribes any substance listed in the National Pollutant Release Inventory (NPRI), as well as acetone, as toxic substances. The NPRI is a federally administered, national inventory of pollutant releases, disposals and transfers for recycling; as of July 2015, it lists 363 substances.

Under the *TRA*, manufacturing and certain mineral processing facilities that use toxic substances are required to:

- track and quantify how each toxic substance enters, is used in and leaves the facility;
- develop a toxic substance reduction plan for each toxic substance used (facilities are not required to implement these plans, but may choose to do so voluntarily); and
- prepare an annual report on the facility's use, creation and release of toxic substances and its progress in implementing its toxic substance reduction plans.

For a full overview of the *TRA*, see Part 4.2 of the ECO's 2009/2010 Annual Report.

Implementation of the *TRA* to Date

In the *Minister's Report on Toxics Reduction, 2014*, the Ministry of the Environment and Climate Change (MOECC) reported that 2010 and 2011 compliance rates showed that 99 per cent of facilities met the requirements of the *TRA*. Furthermore, an estimated 40 per cent of regulated facilities have voluntarily committed to implementing their reduction plans.

Some sections of the *TRA* have not yet been proclaimed into force, such as the requirement under section 11 that facilities prepare reports on prescribed "substances of concern." Substances of concern are potentially hazardous substances that are not tracked through NPRI and for which the ministry has limited information regarding their use or release in Ontario. The MOECC has never prescribed any substances of concern, nor has it set a deadline to enact this section of the *TRA* or to develop such a regulation.

The Living List Framework

Under the *TRA*, the Minister is required at least once every five years to consult with experts and the public about possible changes to the list of prescribed toxic substances. In December 2014, the MOECC finalized The *2014 Living List Framework under Ontario's Toxics Reduction Program* (the "Framework"), a policy that sets out a three-part process for this review. The three parts of the Framework process are: (1) nomination and screening; (2) review and public participation; and (3) decision making.

The Framework was developed through a multi-stakeholder process that involved representatives from environmental, labour and public health groups, academia and industry. It sets out seven guiding principles: openness; transparency; science-based; flexible and robust; outcome-driven; build on and acknowledge existing relevant programs; and integrate performance measurement.

Part One: Nomination and Screening

The Framework's process begins when a member of the public or the MOECC proposes a change to the list of prescribed toxic substances (i.e., a "nomination"). Substances can be nominated for possible addition to or deletion from the list, or to change the way the substance is listed (e.g., changing how the substance is defined). Throughout the process, the ministry will use a website to provide status updates about each nomination, including information about "screening, review and decision steps, including summaries of information relied upon to support reviews and rationale for decisions."

All nominations undergo screening by the MOECC to determine whether a full review is appropriate. The screening criteria set out in the Framework are whether the substance:

- is or is not already on the toxic substances list (e.g., a nomination to delete may be rejected if the substance is not currently prescribed);
- is likely used, created or emitted in Ontario by a regulated facility (e.g., a nomination to add may be rejected if the substance is not used or is not likely to be used by a regulated facility);
- has identifiable hazardous properties (e.g., a nomination to delete may be rejected if a substance is recognized as being highly hazardous); and
- is within the current policy scope of the *TRA*.

In applying these criteria, the ministry will use "established hazard classifications available from authoritative bodies such as ... the World Health Organization." The Framework also notes that additional guidance material has been developed to provide further detail to nominators about the screening process; however, the title and/or location of this material were not provided.

Part Two: Review and Public Consultation

If nominations pass the screening, the ministry will conduct a full review and then make a recommendation regarding what changes should be made to the prescribed toxic substances list, if any. The review process is divided into three steps, set out in Figure 2.3.1.

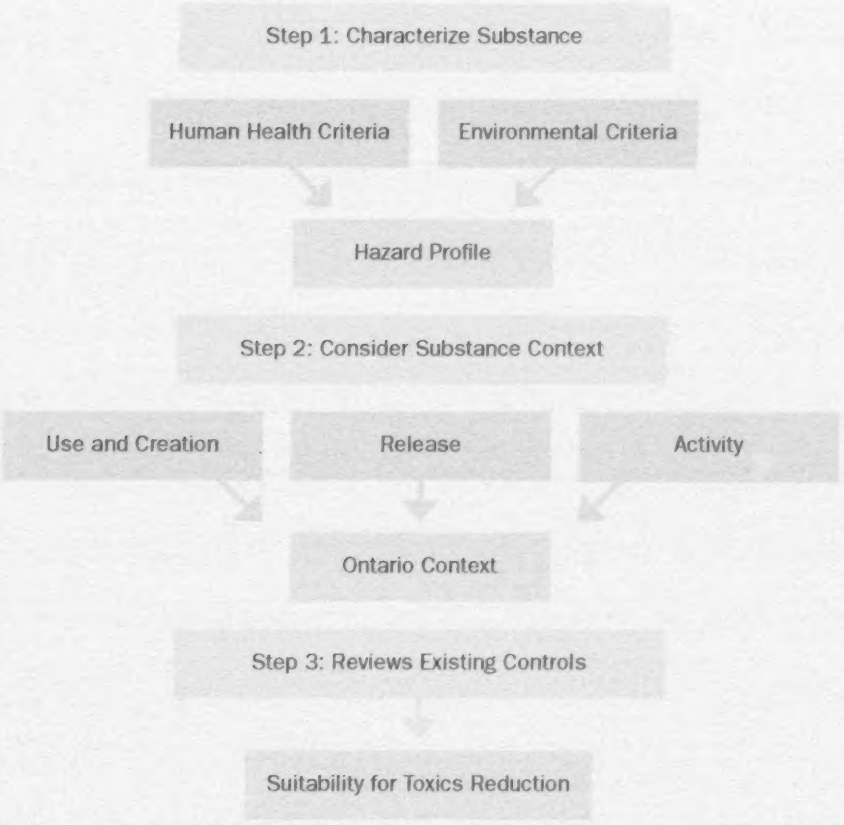


Figure 2.3.1. Step-by-step application of review criteria during the review step. The light green boxes identify the specific task associated with each step, the dark green boxes identify the criteria or factors the ministry must consider in that step, and the grey boxes identify the output of the step. (Source: MOECC, *The 2014 Living List Framework under Ontario's Toxics Reduction Program*, 2014).

To complete the first review step, the ministry must characterize the hazard posed by the substance by considering environmental and human health criteria. The Framework establishes that, when evaluating these criteria, the MOECC will "focus on readily available, peer-reviewed sources of information." The environmental criteria are:

1. persistence (half-life in air, water and soil/sediment);
2. bioaccumulation (bio-concentration factor or bioaccumulation factor);
3. aquatic toxicity;
4. wildlife toxicity; and
5. form and associated bioavailability.

The human health criteria are:

1. acute toxicity (i.e., adverse effects resulting shortly after a single exposure);
2. chronic toxicity (i.e., adverse effects resulting from repeated or long-term exposure); and
3. whether there are other similar properties of the substance that have "scientific evidence of probable serious effects on human health or the environment."

In the second review step, the MOECC will incorporate Ontario-specific contextual information about the use of the substance. The following questions will guide this assessment:

- Are discharges primarily associated with industrial sources and/or a regulated sector?
- Generally, how does the substance enter a process, how is it used or created, and what is its role in the final product?
- Is the substance used or created by *TRA*-regulated facilities?
- Is there reason to believe that there may be an increase or decrease in the use, creation or release of the substance in Ontario?

In step three, the ministry will incorporate information about existing tools used to manage the substance, including federal government initiatives and other provincial programs.

Once the MOECC has completed this review, it must consult with the public before deciding whether to propose changes to the prescribed toxic substances list. As part of this consultation, the MOECC will hold a public meeting, which will be advertised on the Environmental Registry. To facilitate public engagement, the ministry will publish an overview of the scientific and contextual information reviewed and a summary of how the substance is currently managed in Ontario, as well as an explanation of how any uncertainties in the information were addressed within the review process.

After considering information and comments from the public, the MOECC will then prepare a second Registry notice advising the public of the recommended course of action; this will be either a regulatory proposal notice, if the ministry decides that changes should be made to the list of prescribed toxic substances, or, if no changes to the regulation are proposed, an information notice advising the public of the decision.

Part Three: Decision Making

The ministry will consider any comments received in response to a regulatory proposal notice, as well as the input of other agencies or jurisdictions, when reaching a final decision about any proposed change to the toxic substances list. The ministry will post the final regulatory decision to the Registry and notify the nominators of the outcome.

IMPLICATIONS OF THE DECISION

Clear Process for Evaluating Proposed Changes

The Framework sets out a step-by-step process for proposing, evaluating and reaching a decision concerning potential changes to the list of prescribed toxic substances. The public's entitlements to notice and participation at each stage are clearly set out, as are the MOECC's responsibilities to consider certain types of information and to provide the public with decision-making details. However, the Framework does not establish timelines for the completion of the screening, review and decision-making processes, nor does it clarify whether reviews will be carried out on a rolling basis or only periodically.

Mandated Public Involvement in Decision Making

The Framework sets out clear obligations for the MOECC to regularly communicate status and information updates to the public, including: nominations received; outcomes of screening; summaries of the review; key engagement meeting dates; and government decisions. Furthermore, public input will be invited on all nominations that make it to the review stage. Overall, the Framework sets out a robust public participation process for nominations that reach the review stage.

Precautionary Approach Applied

The Framework states that the MOECC will follow "a precautionary, science-based approach in its decision-making approach to protect human health and the environment." This indicates that in those cases where precise

hazards are uncertain, but there is evidence of significant risks, the ministry will favour the decision that is more protective of human health and the environment.

Criteria Leave Room for Interpretation

In some cases, the screening and review criteria are not clearly explained. For example, persistence in air, water and soil is a review criterion, but the Framework offers no indication of what level of persistence is either acceptable or troubling. Although the Framework refers to an additional guidance document that provides further detail about the criteria used in the screening process, the name and location of this document are not provided.

Additionally, the Framework does not provide direction on how the ministry should weigh or apply the review criteria and contextual factors. For example, the Framework requires that a substance's hazard profile be determined during the review stage by examining its environmental and health implications, but there is no discussion of how different types of implications should be ranked or considered cumulatively. Without such guidance, it is somewhat unclear what hazard level (or threshold) necessitates that a substance should or should not be prescribed as toxic.

No Triggers for Ministry-led Nominations

Although the Framework specifies that the MOECC may put forward its own nominations for changes to the prescribed toxic substances list, it provides no information on what might trigger the ministry to make a nomination. Having an established system for the ministry to proactively identify possible changes to the list would help ensure that the ministry removes inappropriate substances from the list and adds toxic substances to the list in a timely manner.

ECO COMMENT

The ECO is pleased that the MOECC has clearly prioritized stakeholder involvement in the process for developing the Framework, and that public participation and transparency are priorities throughout the process. Empowering the public to propose and offer input on possible changes to the prescribed list of toxic substances, and ensuring access to information about how decisions are made, are consistent with the goals of the *Environmental Bill of Rights, 1993*. The ECO hopes the Framework process will lead to the development of an evolving list of prescribed toxic substances that effectively protects the environment and human health, without being unnecessarily burdensome on regulated facilities.

This commitment to public participation and transparency should be further strengthened by setting out clear timelines for considering and deciding on nominated substances. The ministry could also strengthen transparency, as well as accountability, by providing additional guidance on how the ministry will apply and weigh the screening and review criteria for nominations. The Framework fails to explain how the criteria will inform a decision about whether or not a substance meets the threshold for recommending a change to the existing toxic substances list. Such a discussion would contribute to a common understanding of how criteria are to be applied and weighed during the decision-making process, as well as contribute to fair and consistent decisions.

The ECO is also pleased to see the explicit acknowledgement and endorsement of the precautionary approach in the Framework. We encourage the MOECC to apply this approach generously throughout the Framework process, particularly when applying the screening criteria.

Creating the Framework process, however, does not in itself satisfy the *TRA* requirement for the Minister to actively consult on potential changes to the toxic substances list every five years (for which the first five-year period ended in January 2015). Now, the ministry must identify high-priority substances to be considered for addition to either the substances of concern or toxic substances lists. It is insufficient for the government to leave the identification of potentially toxic substances to the public alone. A good starting point would be for the ministry to prioritize the review of the 135 non-NPRI substances identified as reproductive toxins, neurotoxins, mutagens and carcinogens in the MOECC's 2008 *Creating Ontario's Toxics Reduction Strategy: Discussion Paper*.

In addition, the ECO encourages the MOECC to proclaim section 11 of the *TRA* into force and begin compiling its list of substances of concern.

For a more detailed review of this decision, please refer to Section 1.2.5 of the Supplement to this Annual Report.

Comments from the MOECC

The ministry appreciates that ECO recognizes the extent and support of public participation in the development of the Living List Framework. Once the Framework is officially launched in 2015 guidance will be made available that will include additional information on the criteria applied to determine the hazard profile of a substance.

Public participation will remain an integral part of the process throughout implementation and public updates will be made available on a nomination's status, screening and on batching, if applicable.

The Living List Framework is the mechanism for making changes to the prescribed list of toxics under the Toxics Reduction Act. Nominations, including those for substances previously considered as substances of concern, can be considered though the Framework.

2.4 A New Regulation for Greenhouse Wastewater

Phosphorus and nitrogen-based fertilizers help plants grow, but when these nutrients find their way into lakes and rivers, they can also increase the growth of algae and plants in the water. The oversupply of nutrients to aquatic systems, known as eutrophication, can negatively impact ecosystem health, drinking water supplies, fisheries, recreation, tourism, and property values. Nutrient pollution is one of the most widespread water quality problems in Canada and around the world.

During the 1960s and 1970s, Lake Erie and several of the other Great Lakes experienced algal blooms and other damaging effects of eutrophication. Sewage treatment plants were identified as a significant source of phosphorus loadings during this time. In response, the Canadian and American governments signed the *Great Lakes Water Quality Agreement* in 1972 to reduce nutrient loadings and to clean up the lakes. By the 1980s, phosphorus loadings into Lake Erie had decreased and the problems associated with eutrophication subsided – making it an international success story – at least temporarily. For more information on recent Great Lakes initiatives, refer to Part 3.1 of this Annual Report.

Unfortunately, eutrophication has once again become a problem in Lake Erie. During the early 2000s, the amount of algae in the lake began to increase and oxygen levels in the water started to decrease. In 2011, the western basin of Lake Erie experienced the largest harmful algal bloom in its history, spanning more than 5,000 km^2 in size. This bloom was composed almost entirely of toxic blue-green algae. Agricultural operations, particularly the application of fertilizer and manure to land, are now a major source of phosphorus loadings into Lake Erie. Most of this input happens during spring snowmelt and following heavy rainstorms, when runoff waters transport phosphorus into nearby creeks, streams and rivers. In fact, researchers believe that heavy rain storms, warm weather and an increase in three farming practices – no-till farming, autumn fertilizer application and surface broadcasting of fertilizers – contributed to the 2011 algal bloom.

Photo credit - Michigan Sea Grant (right)

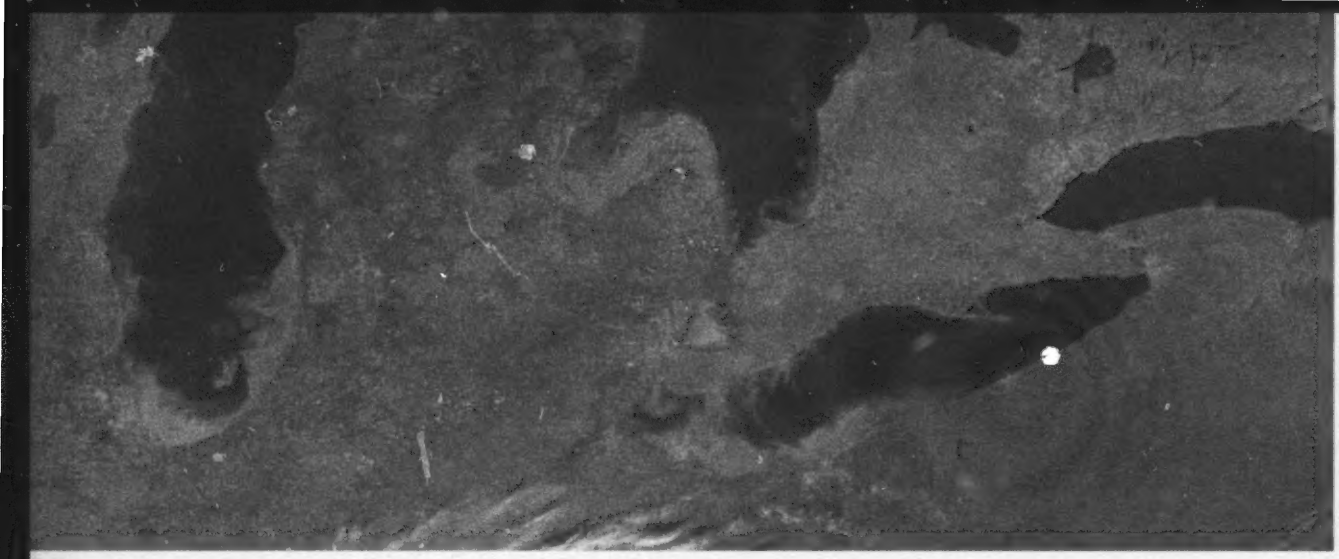


Photo credit - NASA's Earth Observatory

Greenhouse Wastewater

Greenhouses generally produce three types of wastewater: stormwater (runoff from rain and snowmelt); sanitary sewage (wastewater from any kitchen or bathrooms on site); and process water (the water used in the greenhouse process to irrigate and wash crops).

The Ministry of the Environment and Climate Change (MOECC) reported in 2012 that wastewater from 65 per cent of greenhouse operations sampled around the Leamington, Ontario, area were polluting waterbodies that flow into Lake Erie with levels of nutrients (nitrogen and phosphorus) and metals (potassium and copper) that exceeded water quality objectives set out in provincial and federal guidelines. These results indicated that the majority of greenhouse operations were not adequately managing their wastewater.

Greenhouse operations have a number of options to dispose of or discharge their wastewater. The MOECC considers all greenhouse wastewater as sewage. As a result, a greenhouse must obtain an Environmental Compliance Approval (ECA) for sewage from the MOECC under the *Ontario Water Resources Act* (*OWRA*) to discharge its wastewater to surface water, sewage works or to apply it to land. Where municipal sewer facilities are available, a greenhouse can discharge its wastewater directly into the sanitary sewer without an ECA. Alternately, a greenhouse can dispose of its wastewater at an approved waste disposal site, using an approved waste hauler. Despite these options, the greenhouse industry asked the provincial government for additional regulatory alternatives that are more predictable, less costly and specifically geared toward the greenhouse sector.

New Regulatory Framework for Applying Nutrient Feedwater to Land

Subsequently, the MOECC and the Ministry of Agriculture, Food and Rural Affairs (OMAFRA) worked together to create a new regulation under the *Nutrient Management Act, 2002* (*NMA*). Greenhouse operators can now choose to register under O. Reg. 300/14 (Greenhouse Nutrient Feedwater), which governs how greenhouse nutrient feedwater ("nutrient feedwater" or GNF) is stored, transported and applied to land. Nutrient feedwater is defined as a type of process wastewater generated when a nutrient solution is removed from a closed circulation system greenhouse. In this type of greenhouse system, nutrient-rich water is recycled until it is no longer optimum for growing greenhouse plants. While nutrient feedwater no longer contains the optimal mix of nutrients for growing plants in greenhouses, it retains some valuable nutrients and can be used for growing certain crops outdoors.

The new nutrient feedwater regulation, along with two protocols incorporated by reference, set out specific rules and requirements for generating, transporting, storing and land applying nutrient feedwater, as well as education and training provisions. For example, the regulation requires that large greenhouse operations that are registered under the regulation prepare a nutrient feedwater strategy. And farming operations that want to land apply nutrient feedwater that was generated from a registered greenhouse may have to prepare a nutrient feedwater plan and application schedule. Greenhouse and agricultural operations that follow the provisions of the new regulation no longer require an ECA for sewage works under the *OWRA* to manage their nutrient feedwater.

The MOECC will continue to regulate all other discharges and disposals of nutrient feedwater and other greenhouse wastewater under the *OWRA* and the *Environmental Protection Act* (*EPA*).

IMPLICATIONS OF THE DECISION

Land Application Restrictions to Protect Water Quality

The over-application of fertilizers and nutrients onto land can cause the loading of excessive nutrients into waterbodies. The ministries stated that the new regulation mitigates such potential adverse environmental impacts through rules designed to balance the amount of nutrient feedwater applied with the ability of the crops to use it. The regulation contains rules for applying nutrient feedwater to land that are intended to protect groundwater, surface water and soil quality. These rules include runoff provisions, maximum hourly, daily and yearly application rates, and setbacks from watercourses. While there are some new rules, many are similar to existing requirements under the *NMA* and *OWRA*, such as setbacks to wells and surface water, and the prohibition of applying nutrient feedwater to ground that is snow-covered or frozen.

Limited Potential to Reduce Nutrient Pollution

The regulation only applies to nutrient feedwater generated from a greenhouse operation that chooses to register with the OMAFRA. While the regulation attempts to encourage the industry to reduce, reuse and recycle nutrients, if only a small number of greenhouses choose to register, the resulting reductions in Great Lakes water pollution from greenhouses (that can be attributed to regulation) could be negligible.

The OMAFRA and the MOECC estimated, through consultation with the greenhouse industry, that fewer than 3 per cent of greenhouses in Ontario, or 30 operations, were likely to take advantage of this regulation to manage nutrient feedwater generated from their operations. The OMAFRA stated that since these projections were made, "attention to wastewater management in greenhouses has increased, leading to a reduction in the need to manage GNF in large quantities," which could further reduce the number of operations that opt into the regulation. According to the OMAFRA, as of May 2015, only four greenhouse operations had submitted registrations and it had not received any nutrient feedwater plans.

ECO COMMENT

Excessive nutrient levels in lakes and rivers is one of the most widespread, costly and challenging environmental problems in North America. Nutrient pollution impairs water quality by promoting algal blooms, which can degrade ecosystem health and drinking water quality. Eutrophication has plagued the Great Lakes region, and particularly Lake Erie, since the 1960s. Recently, the MOECC found that wastewater from greenhouses is contributing to the loading of nutrients into Lake Erie and, thus, is compromising the province's commitment to reduce phosphorus loadings as required under international agreements.

Unfortunately, the new regulation created by the MOECC and the OMAFRA to address greenhouse nutrient feedwater has limited potential to reduce overall nutrient loadings to the Great Lakes from Ontario's greenhouses. These new rules only apply to one type of process wastewater from greenhouses and, even then, only to those greenhouses that choose to register under the new framework. Indeed, the ministries predicted that less than 30 greenhouse operations will use this regulation. This means that approximately 200 greenhouses in the highlighted problem areas of Niagara and Leamington "will need to come into compliance with the requirements of the *OWRA* and the *EPA*," according to the OMAFRA. Given the MOECC's findings in 2012 that more than half of greenhouses in the Leamington area discharged wastewater with nutrient and metal concentrations higher than provincial objectives for water quality, this new regulation is likely to make only a very small dent in the greenhouse nutrient management problem.

In order to achieve the province's vision that the Great Lakes be "swimmable, drinkable and fishable," the government has to do much more to address current water quality impacts from the agricultural sector. Since the sources of phosphorus in Lake Erie have changed since the 1960s, so should the government's tactics to

reduce nutrient pollution. As a start, the MOECC should ensure that all greenhouse operations have the necessary approvals to discharge wastewater and are in compliance with these approvals. In cases of non-compliance, the ministry should take appropriate enforcement action.

On June 13, 2015, Ontario, Michigan, and Ohio agreed to a 40 per cent total load reduction in the amount of phosphorus entering Lake Erie's Western Basin by the year 2025, with an interim goal of a 20 per cent reduction by 2020. Furthermore, Ontario and the states committed to develop, in collaboration with stakeholders involved, a plan outlining proposed actions and timelines toward achieving the phosphorus reduction goals. Since scientists predict that algae blooms will worsen in Lake Erie – similar to the outbreaks in 2011 and the summer of 2014, which made drinking water unsafe for almost half a million people in Toledo, Ohio – Ontario's commitments seem promising. Only swift action and co-ordinated effort to control eutrophication will once again make Lake Erie and the Great Lakes a success story.

For a more detailed review of this decision, please refer to Section 1.2.2 of the Supplement to this Annual Report.

RECOMMENDATION 2:
The ECO recommends that the MOECC report annually on its progress to ensure greenhouse wastewater discharges meet Provincial Water Quality Objectives, as part of Ontario's implementation plan towards the Lake Erie phosphorus reduction goal announced in 2015.

Comments from the OMAFRA

The new regulation for greenhouse nutrient feedwater (GNF) provides an additional option to facilitate compliance with environmental standards. This need was raised by the greenhouse sector as a way to promote reuse of feedwater while providing a new source of nutrients to fertilize crops. The regulation provides greenhouse operations with a new option to manage GNF to protect the environment and support the sector's sustainability. The *Ontario Water Resources Act* will continue to address discharge of GNF to groundwater or surface water.

In addition, under the new Canada-Ontario Agreement on Great Lakes Water Quality, both Canada and Ontario committed to creating action plans to reduce the impact of excess nutrients on the water quality of Lake Erie. Ontario's new Great Lakes Agricultural Stewardship Initiative also helps producers improve soil health and reduce run-off.

Comments from the MOECC

The regulation provides an alternative to the *Ontario Water Resources Act (OWRA)* ECA required when discharging nutrient feedwater to surface water and ground water including lakes and streams.

The ministry is implementing a three-year action plan (complete by March 31, 2017) to enhance environmental compliance at 250 vegetable greenhouses, including:

- conducting proactive inspections of the greenhouse vegetable growers (2014 – 20 inspected, 2015 – 130 planned inspections, 2016 – 100 planned inspections);
- continued education efforts in collaboration with OMAFRA;
- undertaking additional monitoring of surface water and greenhouse discharges to assess impacts; and,
- confirming compliance with environmental legislation including applicable approvals and, per the ministry's Compliance Policy, issue Orders for corrective measures and/or referral for prosecution where appropriate.

Non-registered greenhouses that discharge nutrient feedwater to surface water or ground water will remain subject to the requirements of the OWRA and enforcement.

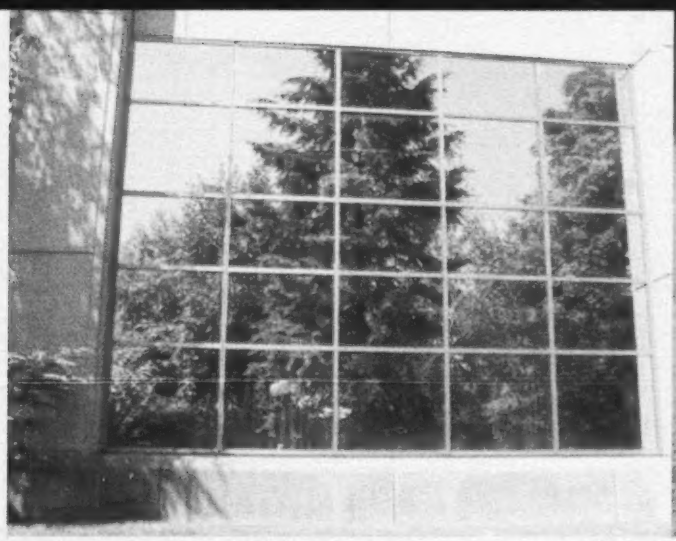


Photo credits - FLAP Canada (left) and S.Scharf - FLAP Canada (right)

2.5 Fatal Attraction: When Birds Hit Buildings

Many birds in eastern North America migrate each spring from their wintering grounds in the south to their breeding grounds in the north, and then back each fall. Situated on the shores of Lake Ontario, between the wintering and breeding grounds of many species, the City of Toronto is an annual stopover for hundreds of thousands of migrating birds.

Unfortunately, as these birds migrate through the city, they risk colliding with office buildings, condominiums, houses and other structures. Collisions with buildings, particularly windows, are a major threat to both migratory and non-migratory birds, killing roughly 25 million birds in Canada each year. These deaths can have serious ecological consequences as birds play important roles as pollinators, seed dispersers, predators, prey and controllers of pests.

Since 1993, a non-profit organization, the Fatal Light Awareness Program (FLAP), has collected data on bird collisions, and rescued injured birds in downtown Toronto. An assessment of FLAP data collected between 1993 and 2007 suggests that significant numbers of migratory birds are affected by building collisions in Toronto's downtown core. These data include injured and killed birds of at least 15 endangered, threatened and other at-risk species.

Reducing Bird Collisions

Bird collisions (or "strikes") with buildings result from a variety of causes. At night, birds that rely on the light of the moon and stars for navigation may be attracted and confused by brightly lit buildings, leading them to fly into windows and other glass surfaces (for more information on the ecological consequences of nighttime light pollution, see Part 4.3 of this Annual Report).

During the day, glass that reflects the sky and nearby vegetation can cause birds to fly toward, and collide into, what they mistakenly perceive to be open space or habitat. Indeed, daytime bird strikes are most prevalent for buildings with highly reflective windows and nearby trees and ground cover.

There are a number of things building owners and property managers can do to minimize bird collisions. These include: turning off indoor lighting; shielding outdoor lighting; applying visual markers to glass; installing awnings, sunshades, facades, netting, grilles, shutters, shades or curtains; avoiding highly reflective or transparent glass; and moving indoor greenery away from clear glass.

Request to Investigate Bird Collisions Caused by Reflected Light

In March 2014, two applicants submitted an application for investigation under the *Environmental Bill of Rights, 1993* (*EBR*), alleging that several buildings in Toronto were contravening the *Environmental Protection Act* (*EPA*) by reflecting light that caused bird deaths.

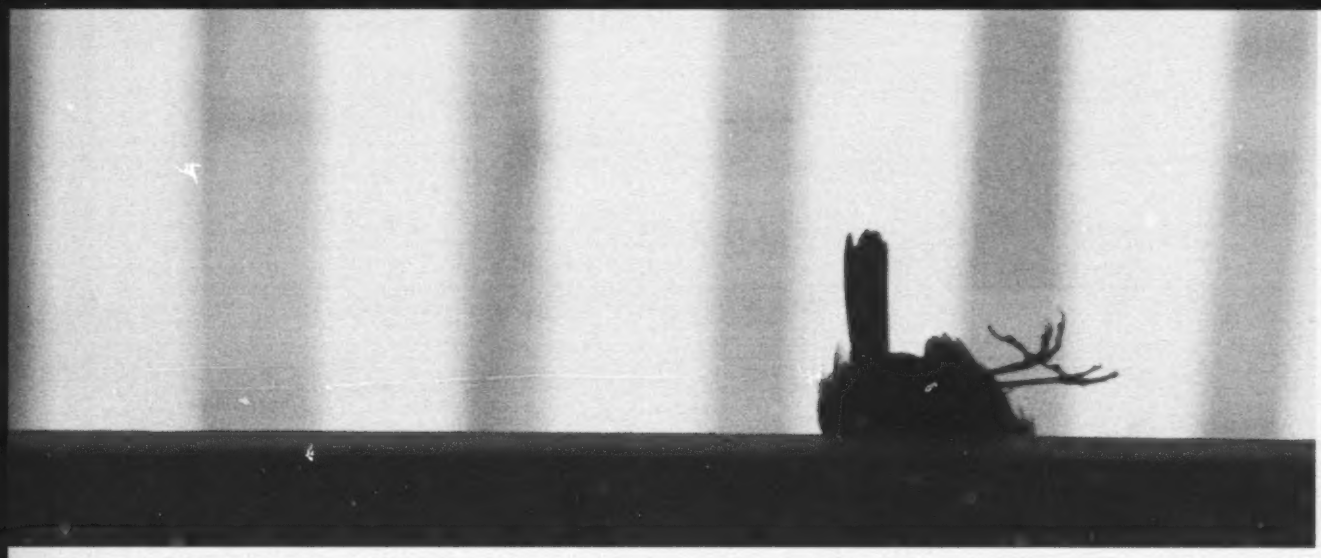


Photo credits - S. Scharf – FLAP Canada

Specifically, the applicants alleged that six corporate property owners/managers were violating subsection 9(1)(a) of the *EPA*, which prohibits the operation of any structure that may discharge, or from which may be discharged, a contaminant into the natural environment, except under and in accordance with an Environmental Compliance Approval (ECA). In making their case, the applicants pointed to a February 2013 decision by the Ontario Court of Justice that found that reflected light that is responsible for bird deaths is a "contaminant" under the *EPA*. The applicants argued that the corporations, which have "a documented history of bird strikes at their commercial buildings," were contravening the *EPA* by discharging a contaminant (reflected light) without an ECA.

As supporting evidence, the applicants provided data collected by FLAP from 2000–2010 on the number of collisions observed at 18 buildings owned by the corporations. According to the data, each building was the site of several hundred bird collisions during this time. The applicants also reported that correspondence with the corporations, and web searches on the Environment Registry and website of the Ministry of the Environment and Climate Change (MOECC), uncovered no relevant ECAs for the buildings in question. The ECO forwarded the application to the MOECC.

MINISTRY RESPONSE

After twice extending the timeline for completing the ministry's preliminary review of the application, the MOECC denied the request for an investigation in November 2014 – five months past the statutory deadline required by the *EBR*. The ministry concluded that an investigation "is not warranted as non-regulatory tools (e.g. promotion/guidance) are a more proportionate response to the adverse effects caused by reflected light."

The ministry elaborated that: "given the guidance provided by the federal government and some municipalities to make property managers more aware of how they can address the issue of bird strikes through voluntary practices; the ministry is satisfied that not proceeding with compliance activities for the emission of reflected light is appropriate."

With respect to municipal guidance, the ministry referred to Toronto's *Bird-Friendly Development Guidelines*, which outline site design strategies and recommendations to make new and existing buildings less dangerous to migratory birds. With respect to federal government guidance, the ministry was referring to Environment Canada's *Guide for Developing Beneficial Management Practices for Migratory Bird Conservation*. This guide outlines a process for industries and stakeholders, whose activities may affect migratory birds, to develop Beneficial Management Practices.

The MOECC expressed an interest in working with the applicants and other stakeholders on opportunities to create guidance and promote best practices to prevent bird strikes.

For the full text of the ministry decision, please see our website at www.eco.on.ca.

ECO COMMENT

The ECO has several major concerns with the MOECC's handling of this application for investigation.

First, the MOECC denied this application five months past the statutory deadline required by the *EBR*. Yet nothing in the *EBR* allows the ministry to arbitrarily delay a decision to deny an application for investigation. The ECO has flagged the ministry's poor compliance with the *EBR*'s mandatory application timelines several times before (for example, see Part 1 of the ECO's 2011/2012 Annual Report and Part 1.5 of the ECO's 2012/2013 Annual Report). Such repeated disregard for the *EBR*'s deadlines is inexcusable.

Second, the ministry denied this application on the basis that "non-regulatory tools (e.g. promotion/guidance) are a more proportionate response to the adverse effects caused by reflected light." This implies that the ministry does not consider the adverse effects caused by reflected light (both in general and in the specific alleged contravention) to be serious enough to warrant an *EBR* investigation. The ECO disagrees with such a position; the death and injury of thousands of birds, particularly endangered and threatened species, is a serious issue. The significance of this threat was established in the Ontario court's 2013 judgement in the bird death case: "to be clear, I do not view the death and injury of hundreds if not thousands of migrating birds as a matter of merely 'trivial or minimal' import."

Third, the ministry's response seems to suggest that, because property owners and managers can follow federal and municipal guidance to minimize bird collisions, the alleged contravention (operating without an ECA) is not likely to cause environmental harm. But information provided by the applicants suggests that the alleged contraveners have not actually implemented available guidance. If this is true, and the corporations are not voluntarily taking actions to reduce bird strikes, the alleged contravention may in fact be causing harm to the environment.

The bigger, underlying problem, however, is that the Ontario court decision created a regulatory gap that the MOECC has failed to address. The court ruled that reflected light that causes injury or death to birds constitutes a discharge of a contaminant under the *EPA*. It follows then, as per section 9 of the *EPA*, that any structure that reflects light that may cause injury or death to birds should require an ECA. However, the underlying message of the MOECC's decision to deny this application is that the ministry will not actively regulate the impacts of reflective buildings on birds by requiring an ECA or by some other means. Instead, it appears that the ministry's preferred approach is to ignore its regulatory responsibility and leave it up to property owners and managers to voluntarily follow guidelines and suggested strategies.

If the MOECC had undertaken an investigation, it could have thoughtfully worked through the most appropriate and effective means (e.g., approvals, charges, voluntary compliance, etc.) to address any adverse effects caused by reflections from the buildings named in the application. More importantly, the ministry could have determined the best way to regulate the impacts of reflected light, such as: requiring reflective buildings to obtain ECAs; regulating reflective buildings through a permit-by-rule approach; or some other approach. It is noteworthy that the ministry already regulates other sources of bird mortality in approvals that it issues. Given the scale of bird mortalities caused by building collisions, the MOECC unequivocally has a role to play in addressing this serious problem. The ECO urges the ministry to clarify how it will address the regulatory gap created by the court decision.

For a more detailed review of this application, please refer to Section 3.1.3 of the Supplement to this Annual Report.

RECOMMENDATION 3:

The ECO recommends that the MOECC publicly clarify how it will regulate reflected light from buildings to protect birds, now that an Ontario court has ruled that it is a contaminant under the *Environmental Protection Act*.

Comments from the MOECC

The ministry denied the request to investigate as it is the ministry's position that a regulatory approach would not be effective. A regulatory framework would be difficult to enforce and would potentially limit innovative solutions by businesses that could be specific to their operations.

In making its decision, the ministry considered tools available to prevent the collision of birds into reflective and illuminated surfaces. Guidelines are available from municipal governments, including the City of Toronto, on how businesses and homeowners can take steps to minimize bird collisions. Environment Canada also encourages businesses and stakeholders to develop beneficial management practices to protect migratory birds. In addition, the ministry is working with [the Ministry of Natural Resources and Forestry] and [the Ministry of Municipal Affairs and Housing] to discuss opportunities to promote bird-friendly development guidelines and best management practices.

2.6 Ministry Ignores Requirement for Environmental Compliance Approval

In most cases, facilities in Ontario that discharge contaminants into the environment must have an Environmental Compliance Approval (ECA) issued by the Ministry of the Environment and Climate Change (MOECC) under the *Environmental Protection Act* (*EPA*). An ECA authorizes a proponent to emit limited amounts of pollutants under conditions intended to minimize negative effects on the surrounding environment. ECAs are a cornerstone of Ontario's environmental regulatory regime as they are the basic mechanism by which the ministry manages pollution from commercial and industrial operations within wider communities where people live, work and play.

The issuance of an ECA also presents an important opportunity for members of the public to exercise several of their environmental rights. Notice of the ministry's proposal to issue an ECA is usually posted on the Environmental Registry, giving Ontarians an opportunity to comment on the proposed operations and related conditions; these comments must be considered by the ministry in reaching a final decision about whether to issue an approval and what conditions to apply. After the decision is made, Ontarians also have the right to seek leave to appeal that decision.

It is an offence under the *EPA* for a facility to operate without a required ECA. Facilities operating without the necessary approval deny their community important safeguards and Ontarians the opportunity to exercise their environmental rights. The ECO has previously cautioned the MOECC that when it fails to strictly enforce the requirement for an ECA, it risks undermining its approvals program and eroding public confidence in the approvals process and the rights established by the *Environmental Bill of Rights, 1993* (*EBR*).

Concrete Facility Operating without an ECA

In February 2014, two individuals submitted an application to the ECO under the *EBR* requesting an investigation of a Hamilton concrete facility. The applicants alleged that the facility had been operating periodically for at least seven years without the required approvals (for air and noise, and possibly for industrial sewage works), and that the operator was not meeting reporting obligations. The applicants based their allegations primarily on the MOECC's own findings from ministry inspections conducted in 2006 and 2011.

A June 2006 MOECC inspection determined that the facility lacked the required air and noise approval and industrial sewage works approval. In addition, the ministry found that the company had not been reporting its air emissions as required under *EPA* regulations. Although the operator at the time, Ontario Redimix Ltd., applied for an ECA in 2007 (Environmental Registry #010-0774), the company ultimately withdrew its application and the approval was never issued. Nonetheless, it appears that Ontario Redimix Ltd. and a subsequent owner operated the facility, at least periodically, throughout 2007 and 2008 without an ECA.

In 2009, the facility was sold and began operations as Inter County Concrete Products Limited ("Inter County"). It appears that the facility was operated (at least intermittently) from 2009 to 2014 without an ECA, despite a second MOECC inspection in March 2011 that again identified the need for an approval and noted a failure to complete an Emissions Summary and Dispersion Modelling report as required under *EPA* regulations. Such a report is intended to document air emissions from a facility and predict how that pollution will disperse into the environment; this allows the ministry and the proponent to identify any likely off-site effects. Ultimately, Inter County applied for an ECA for air and noise in 2013, and a proposal notice was posted on the Environmental Registry (#012-0352) on October 31, 2013.

The applicants noted several negative consequences resulting from the unapproved operation of the facility. First, they reported that individuals had observed "drag-out" (i.e., dirt and debris tracked out of the site onto the public road), a form of particulate pollution. In addition, they observed that without the Emission Summary and Dispersion Modelling reports there is no publicly available information about emissions from the facility.

The applicants also expressed concern that by knowingly allowing the facility to operate without the required approvals, the MOECC "sets a bad example and creates an 'unlevel playing field' where compliance approvals are concerned" and may undermine the integrity of the approvals process altogether. Furthermore, the MOECC's failure to make a decision on the required approvals deprived community members of the right to review and/or appeal any such decision. In particular, the applicants noted that they had submitted comments on both of the ECA proposals for the facility; yet the facility continued to operate outside the regulatory system.

MINISTRY RESPONSE

The ECO forwarded the application for investigation to the MOECC. The ministry denied this request in May 2014. The MOECC explained that an investigation was not warranted because the alleged contraventions were unlikely to harm the environment and an *EBR* investigation would duplicate actions already undertaken by the ministry. Furthermore, an ECA had been issued to Inter County on April 29, 2014 (Environmental Registry #012-0352), bringing the company into compliance with applicable environmental legislation and regulations.

The ministry also noted that it had made efforts to bring the facility into compliance prior to the application. To this end, the ministry identified two attempts to address the ECA and reporting violations: (1) in March 2007, it sent a "warning letter" about reporting obligations; and (2) in the fall of 2008, it asked the company to submit an ECA application. However, despite the second inspection in March 2011, the ministry reported no follow-up efforts to resolve the ECA issue, even after the ministry received dust and drag-out-related complaints in June 2012 and July 2013.

The MOECC also explained that an investigation is unwarranted because the ministry has received only four dust and drag-out-related complaints in the past seven years and the facility intends to pave the driveway and front portion of the site for dust control purposes. Further, the newly issued ECA includes conditions intended to address dust and drag-out issues, as well as noise abatement measures and record-keeping obligations. The

MOECC also noted that the truck wash facility that required the industrial sewage works approval has not operated in a number of years and has been decommissioned. Overall, the ministry stated that the alleged contraventions have been addressed.

For the full text of the ministry decision, please see our website at www.eco.on.ca.

ECO COMMENT

The MOECC's failure to take enforcement action in this case is deeply troubling. The ECO has previously criticized the MOECC's sometimes lax enforcement of ECA requirements (see Part 4.1 of the ECO's 2013/2014 Annual Report). However, this case, which was brought to light by an *EBR* application, is particularly egregious. The ministry acknowledges that it was aware that the facility was operating at various times since 2006 without the required approvals; yet it made only the most basic efforts to bring the facility voluntarily into compliance. The MOECC could and should have addressed this violation following the 2006 inspection by issuing an Order at that time requiring the facility to halt operations until an ECA was issued.

The MOECC could also have resolved this issue in March 2011 with an Order when an inspection confirmed that the facility was still operating without an ECA. Instead, the MOECC reported no follow-up actions at all. The ministry explained its inaction by stating that "apart from the lack of an ECA, the facility was well managed and not in any obvious contravention of any regulations." It is difficult to think of another scenario where such an explanation would excuse a failure to enforce the law; a person cannot drive without a licence, regardless of whether or not they are a competent driver. In any event, one cannot judge regulatory compliance without the missing emissions reports, and the dust complaints received by the ministry indicate that the operations were not, in fact, without negative consequences for the surrounding community.

The MOECC has a number of compliance tools at its disposal in cases where the *EPA* is being contravened, including issuing Orders requiring that the offending action cease. In this case, however, the ministry never took any enforcement action, such as issuing Orders, administering fines or laying charges against the operator. By tolerating such violations, the ministry creates a dangerous incentive for companies to ignore the law. As the ECO has stated before, the MOECC should have zero tolerance for such glaring violations of one of the *EPA*'s most fundamental provisions. Where facilities knowingly operate without the necessary approvals, the ministry should give consideration to laying charges.

For a more detailed review of this decision, please refer to Section 3.1.2 of the Supplement to this Annual Report.

Comments from the MOECC

The ministry recognizes the ECO's concerns regarding the operation of the facility without the required ECA.

This particular circumstance was unique in that the facility changed ownership a number of times. Over the period in question, the ministry re-engaged the new owners, inspected the facility on a number of occasions and ensured environmental concerns were addressed.

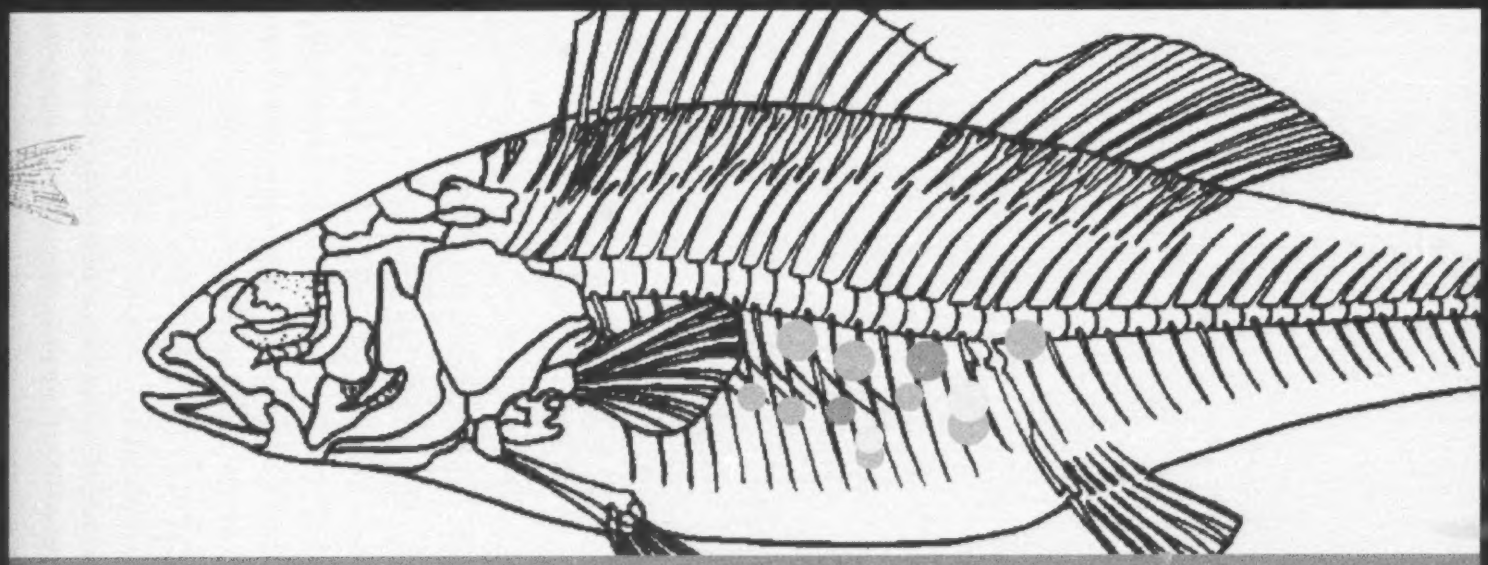
The ministry proactively inspects facilities to assess compliance with approvals using a risk-based approach. If a facility is found to not have an approval, the ministry has a range of regulatory tools which include referrals to the Investigation and Enforcement Branch for investigation and possible prosecution. The ministry has recently strengthened its process for review and follow-up with facilities that have cancelled, returned or refused ECA applications, which includes a monthly reporting system.

Part 3

Managing Water for the Future

This part of the Annual Report looks at a number of issues relating to how Ontario protects and manages its lakes, rivers and groundwater resources. Ontario relies on its abundance of water not only for personal and agricultural uses, and as an important input into commercial and industrial operations, but also for critical ecosystem functions. Freshwater is one of the great natural resources of this province and the Ministry of the Environment and Climate Change (MOECC) has the primary responsibility to ensure it is managed with care.

In this part of the report, the ECO looks at two issues directly affecting the Great Lakes – the source of drinking water for 80 per cent of Ontarians – first, the renewed *Canada-Ontario Agreement to Restore and Protect the Great Lakes*, and second, the proliferation of microplastics in the lakes. We also review the MOECC's water taking permitting system with respect to cost recovery objectives and public participation. Finally, we highlight a happy development: the Ontario government's decision to take over the Experimental Lakes Area in northwestern Ontario.



3.1 A Renewed Agreement to Restore and Protect the Great Lakes

It may be argued that nothing is more essential to Ontario's economic, social and cultural well-being than the Great Lakes. They provide drinking water for over 10 million Ontarians. They help to generate 80 per cent of the province's electricity, driving hydro-electric plants and providing cooling water for other power plants. They support 95 per cent of Ontario's agricultural lands. They provide countless opportunities for recreation, and they are home to myriad species of plants, fish and wildlife. Moreover, the Great Lakes basin is responsible for 40 per cent of Canada's economic activity.

But the Great Lakes are in trouble. Both their water quality and ecosystem health are deteriorating as a result of a host of threats, ranging from urban growth and the deposition of nutrients and harmful pollutants, to aquatic invasive species, habitat loss and climate change. Some beaches are frequently closed due to unsafe bacterial levels, some native species are in decline, and water levels are receding. By all accounts, the Great Lakes are headed for a crisis.

The 8th COA: Co-operating to Protect the Great Lakes

For over 40 years, the Canadian and Ontario governments have collaborated in developing solutions to the problems plaguing the Great Lakes. Their co-operation is essential because each level of government has jurisdiction over different aspects of the Great Lakes.

On December 18, 2014, the governments of Ontario and Canada signed the 8th *Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health* (COA). The COA is an action plan to guide co-operation between both levels of government "to restore, protect and conserve Great Lakes water quality and ecosystem health in order to assist in achieving the vision of a healthy, prosperous and sustainable region for present and future generations." The COA also helps Canada meet its obligations under the binational *Great Lakes Water Quality Agreement* (GLWQA).

THE CANADA-UNITED STATES GREAT LAKES WATER QUALITY AGREEMENT

The Canadian and United States governments signed the first *Great Lakes Water Quality Agreement* (GLWQA) in 1972, recognizing the need to work together to protect and restore the Great Lakes. The GLWQA addressed a range of problems facing the Great Lakes basin and St. Lawrence River. Most notably, the original GLWQA established basinwide water quality objectives, and included commitments to address municipal and industrial pollution.

The GLWQA has been updated several times, each time broadening its goals and commitments. For example, in 1987, the parties identified the most seriously degraded areas in the basin as "Areas of Concern" and committed to developing and implementing Remedial Action Plans to clean them up.

In September 2012, the parties signed a renewed and modernized GLWQA, confirming their shared vision and common objectives for the Great Lakes, as well as establishing short- and long-term commitments for restoring and protecting water quality and ecosystem health. This latest agreement addresses an expanded range of issues threatening the Great Lakes, including aquatic invasive species, habitat and species loss, and climate change.

The COA consists of a "framework agreement" and 14 annexes. The framework agreement includes a lengthy preamble followed by 12 articles that explain the purpose, guiding principles and administration of the agreement. The real substance of the COA – the part that deals with environmental issues and commits the parties to action – is contained in the annexes.

The Framework Agreement

The preamble to the 8th COA includes several new statements that formally recognize the critical importance of the Great Lakes and key approaches to restoring, protecting and conserving them. The parties:

- acknowledge the close connection between Great Lakes water quality and human health;
- recognize that environmentally sustainable and responsible economic activity, resource development and innovation are important to the long-term prosperity of the Great Lakes region;
- acknowledge that First Nations' and Métis' relationships with the Great Lakes and their traditional knowledge may assist in restoring, protecting and conserving the Great Lakes; and
- affirm their commitment to working together to advance the environmental goals of Ontario's Great Lakes Strategy.

The renewed agreement also adopts several new or revised guiding principles, including:

- the need for engagement with the Great Lakes community;
- consideration of the cumulative effects of individual actions on the environment;
- consideration of the identity, cultures, interests, knowledge and traditional practices of First Nations and Métis; and
- recognition of the "polluter pays" principle.

The parties have agreed to report jointly on their progress under the COA "in a manner that generally aligns with reporting requirements under the [GLWQA] and Ontario's Great Lakes Strategy."

The Annexes

The parties' plans for restoring, protecting and conserving the Great Lakes are found in the COA's 14 annexes, which are grouped under 5 priorities (see Table 3.1.1). Under each annex, the parties identify:

Goals – the parties' long-term visions of what they wish to achieve;
Results – outcomes that the parties will pursue in order to contribute to achieving their goals; and
Commitments – actions that the parties will undertake in order to contribute to achieving their goals and results.

In total, the 8th COA includes 37 goals, 76 results and 289 commitments (75 of which are exclusively Ontario's).

Table 3.1.1. Annexes in the 8th *Canada-Ontario Agreement on Great Lakes Water Quality and Ecosystem Health* (grouped under five priorities).

Priority	Annex	Description
Protecting Water	1 – Nutrients 2 – Harmful Pollutants 3 – Discharges from Vessels	These annexes address the connection between clean water and a healthy Great Lakes ecosystem. They include the goals of reducing phosphorus loadings, reducing or eliminating the release of "Chemicals of Concern," and protecting the Great Lakes from discharges of harmful pollutants from vessels.
Improving Wetlands, Beaches and Coastal Areas	4 – Areas of Concern (AOCs) 5 – Lakewide Management	These annexes focus on coastal areas of the Great Lakes, which comprise important and fragile ecosystems. They include a goal to complete priority actions for delisting in five AOCs and commit to significant progress in other AOCs, including developing and implementing contaminated sediment management strategies. They also commit to updating and implementing Lakewide Action and Management Plans.
Protecting Habitat and Species	6 – Aquatic Invasive Species 7 – Habitat and Species	These annexes address threats to the natural habitats and biodiversity of the Great Lakes. They include goals to reduce the threat of existing and potential new aquatic invasive species, and to restore, protect and conserve habitats that support aquatic dependent species. Ontario commits to developing and making available new and/or updated evaluations of wetlands within the Great Lakes basin.
Enhancing Understanding and Adaptation	8 – Groundwater Quality 9 – Climate Change Impacts 10 – Science	These annexes focus on science and investigation of existing and emerging stressors in the Great Lakes, such as climate change impacts and the influence of groundwater on water quality and ecosystem health. All three annexes include goals related to collecting scientific information and increasing understanding to support future decisions and actions.

Priority	Annex	Description
Promoting Innovation and Engaging Communities	11 – Promoting Innovation 12 – Engaging Communities 13 – Engaging First Nations 14 – Engaging Métis	These Annexes aim to improve the well-being of Great Lakes communities. Goals include creating new economic opportunities in the Great Lakes that are environmentally sustainable and improve water quality and ecological health, and providing communities, including First Nations and Métis, with opportunities to get involved in the restoration, protection and conservation of the Great Lakes.

Many of the commitments in the 8th COA involve reviewing, monitoring, tracking, researching, and/or sharing information. These all represent interim steps that will increase knowledge and support further action, but will not produce tangible on-the-ground results in themselves. Many commitments also lack timelines or deadlines. However, notable among Ontario's responsibilities under the agreement, are the following time-bound commitments:

- Support Canada in developing science based phosphorus concentration and load reduction targets for Lake Erie by 2016 (Environment Canada undertook public consultation on proposed binational phosphorus load reduction targets over the summer of 2015);
- Develop and begin implementing a phosphorus management strategy for Lake Erie by 2018;
- Help Canada develop an integrated binational nearshore framework by 2016, followed by implementation; and
- Work with Canada to develop, within two years, an early detection and rapid response framework for aquatic invasive species in Canadian waters.

Other of Ontario's commitments include: to take measures to reduce the quantity and improve the quality of municipal and industrial wastewater, combined sewer overflows and stormwater in five Areas of Concern; to support demonstration projects to encourage the adoption of agricultural practices that increase nutrient use efficiency and reduce phosphorus losses; and, with Canada, to continue to roll out the binational *Biodiversity Conservation Strategy* for all of the Great Lakes.

New Approach to Harmful Pollutants

For the last 20 years, the parties to the COA have committed to reducing releases of persistent bioaccumulative toxic substances, known as "Tier I" substances, with the goal of their "virtual elimination." They also committed to achieving reductions of other harmful pollutants, including "Tier II" substances (i.e., those that have the potential for causing widespread impacts or have already caused local adverse impacts on the Great Lakes environment).

The 8th COA marks a shift away from this approach. The parties commit to reviewing and reporting on past and current activities related to Tier I and Tier II substances, and to continue to implement actions to manage those substances. However, the parties acknowledge a need to address many other chemicals that are used and released into the Great Lakes basin. Consequently, they agree to identify "Chemicals of Concern" and to undertake research, monitoring and other actions related to those substances.

The parties have also retreated from their goal of virtual elimination. Instead, they adopt the guiding principle of virtual elimination of Chemicals of Concern "as appropriate"; their goal is now to "reduce or eliminate" the use and release of Chemicals of Concern within the Great Lakes basin.

IMPLICATIONS OF THE DECISION

A Revitalized Plan for Tackling Great Lakes Problems

While similar in format to past agreements, the 8th COA reflects a more detailed vision for the Great Lakes and the parties' shared responsibility for protecting and restoring them. New features, such as annexes regarding groundwater quality and discharges from vessels, as well as a greater emphasis on the nearshore, agricultural runoff and invasive species, respond to some of the emerging and most pressing threats to the Great Lakes. These new features, as well as an acknowledgment of the need to consider the cumulative effects of individual sources of stress on the Great Lakes, bring the COA into step with the GLWQA, ensuring the parties are able to co-operatively implement Canada's responsibilities under that agreement.

The 8th COA is the first to recognize the need for climate change adaptation strategies in the Great Lakes – a recognition that is missing from the GLWQA. New annexes emphasizing the need to promote environmentally sustainable economic activities on the Great Lakes and to engage communities, including First Nations and Métis (also exclusive to the COA) add a new facet to Great Lakes protection that should enhance collective knowledge, lead to collaboration between more players, and build greater capacity for long-term action to protect and restore the Great Lakes.

Real Action to Reduce Phosphorus in Lake Erie and Address Problems in the Nearshore

The commitments to develop phosphorus concentration and load reduction targets, as well as a phosphorus management strategy for Lake Erie, should hopefully lead to real improvements in that lake. Despite improvements made in the 1980s, Lake Erie is again experiencing excessive phosphorus levels, although the primary source has shifted from municipal wastewater to non-point source agricultural and urban runoff. Too much phosphorus, compounded with the effects of climate change and aquatic invasive species, impairs water quality and ecosystem health, drinking water, fisheries, recreation and tourism. One of the most obvious signs of excessive nutrient enrichment and corresponding reduced available oxygen (known as "eutrophication") is severe algal fouling of the lake and fish die-offs. In 2011, Lake Erie experienced its largest algal bloom ever. The specific action set out under the 8th COA to reverse this problem is urgently needed.

Similarly, the 8th COA commits to improved management of highly stressed and vulnerable nearshore areas of the Great Lakes. Nutrients entering the lakes from urban areas and farmlands become trapped and concentrated near the shore due to currents and complex biological interactions, resulting in harmful algal blooms along beaches and decreased productivity offshore, a process known as the "nearshore shunt" (for more information, see Part 2.1 of the ECO's 2010/2011 Annual Report).

Vague Commitments and Lack of Timelines Present a Challenge to Evaluating Progress

Some of the commitments in the COA are so vague that it is unclear what action will be taken to fulfil them. For example, Ontario's commitment to "improve understanding of cumulative impacts of water withdrawals, diversions, and consumptive uses on the water resources and ecosystems of the Great Lakes basin" doesn't bind the province to any clear action. Although some progress may be made in achieving the parties' goals, the lack of detail provides little certainty on whether, how and when results will be achieved.

The absence of timeframes for fulfilling most commitments, as well as the lack of accountability for the various commitments, will also make evaluating the parties' progress under the COA challenging.

Inadequate Funding

Ontario has budgeted $46.5 million dollars over the five-year life of the agreement (i.e., $9.3 million per year) for activities related to the COA. This funding commitment does not include additional provincial investments in infrastructure for water and wastewater. The province has also committed $46 million specifically for sediment remediation in Randle Reef within the Hamilton Harbour Area of Concern.

The government has not explained how it will allocate the relatively modest annual budget of $9.3 million to the province's multiple commitments under the COA. However, it is unlikely that it will be enough to make a serious dent in the work the parties need to do to achieve their goals.

ECO COMMENT

With jurisdiction over 10,000 kilometres of Great Lakes and St. Lawrence River shoreline, Ontario has a weighty responsibility to reverse the trend of declining ecological health in the Great Lakes. As the list of threats to the Great Lakes grows, so too will the effort and resources needed to achieve and maintain Ontario's vision of healthy Great Lakes that are drinkable, swimmable and fishable.

The COA has come a long way since 1971. The 8th COA is comprehensive and ambitious in its scope. Not only does it include commitments addressing a range of issues not tackled in earlier agreements, but it embraces an expanded vision for the Great Lakes in the future. That vision includes an active role for the communities connected to the Great Lakes – something the ECO has noted was missing in past COAs – and recognizes the Great Lakes' potential to be a centre for innovative and environmentally sustainable economic activity.

Over the years, the ECO has commented on a wide range of problems facing the Great Lakes (for example, see Part 2.1 of our 2010/2011 Annual Report). The ECO is pleased that Ontario will be working on a number of pressing issues, such as reducing phosphorus loadings in Lake Erie (in fact, in June 2015, Ontario signed an agreement with Ohio and Michigan that commits to reducing phosphorus pollution in Lake Erie by 40 per cent by 2025), developing a framework to protect the nearshore environment, protecting coastal wetlands and studying climate change adaptation. It is disappointing, however, that the parties don't commit to more actions that would lead to direct and substantive improvements, such as setting more targets for water quality improvements and the reduction of pollutants. The ECO urges Ontario to prioritize actions that will yield urgently needed environmental improvements.

The COA continues to lack some essential elements of a successful plan, namely: defined timelines for completion of most commitments; identification of the ministry or agency accountable for specific commitments; and clear assurance of sufficient funding. The Ontario government should explain: what actions it will take to fulfil each of its commitments (including those shared with the federal government); which ministry or agency is responsible for each action; when each action will be completed; and how the work will be funded. Making this information public would facilitate future evaluation and reporting and, even more importantly, give Ontarians greater assurance that the commitments made in the 8th COA will actually come to fruition during the life of the agreement. Finally, as the ECO has suggested before, the parties' progress should be subject to independent review.

Agreements and plans are of little use if the funding is not there to act on them. The problems in the Great Lakes are enormous; resolving them will require an enormous investment. While $9.3 million annually for implementing the COA seems like a lot of money, it is a far cry from funding commitments made by Ontario for other major projects in the province – such as $1.2 billion to finish extending toll Highway 407 eastward, over $1.5 billion in operating funding and additional investments for the 2015 Toronto Pan-Am and Parapan American Games, and $60 million annually for forest access roads. The Ontario government can and should prioritize Great Lakes protection and restoration by funding it at the same level as other major projects. With a more significant investment, Ontario could achieve real progress in reversing the damage that has been done in the Great Lakes. The province would also expand its capacity to establish processes and systems to protect the Great Lakes in the future, including developing and implementing climate change adaptation strategies.

The benefits of investing in the Great Lakes are indisputable. The ECO once again urges the Ontario government to dedicate the resources needed to fulfil its commitments under the 8th COA and make Ontario's vision of the Great Lakes a reality.

For a more detailed review of this decision, please refer to Section 1.2.3 of the Supplement to this Annual Report.

Comments from the MOECC

Ontario's $15-million annual spending on Great Lakes protection and restoration projects, along with major wastewater, stormwater and sediment remediation investments, leverages significant funding from Canada and other implementation partners.

Under COA, some commitments have specific completion dates, and all commitments must be completed by 2019. Examples of commitments Ontario supports:

- integrated ecosystem models, taking climate change into consideration, and establishing phosphorus load reduction targets for Lake Erie and its tributaries by 2016. Ontario has also committed to a western basin 40% phosphorus load reduction target by 2025 and an interim target of 20% by 2020 in the Lake Erie Western Basin Collaborative Agreement with Michigan and Ohio;
- status report on "Tier I/Tier II" chemicals and a workplan and timelines to achieve Chemicals of Concern commitments, by 2015. The report will help determine which substances continue to require further actions for reduction;
- updated report on the status of AOCs by March 2016;
- establish binational Lake Ecosystem Objectives by 2017;
- early detection and rapid response framework for Aquatic Invasive Species by 2016.

Workplans are prepared annually to effectively deliver on COA commitments. Our 2015-16 COA workplan supports over 200 projects led by MOECC, [the Ministry of Natural Resources and Forestry] and [the Ministry of Agriculture, Food and Rural Affairs]. COA progress will also be part of the first triennial report on the Ontario's Great Lakes Strategy in 2015/16.

3.1.1 Managing Water Transfers within the Great Lakes Basin

On January 1, 2015, key provisions of the *Ontario Water Resources Act* (*OWRA*), as well as amendments to the water taking and transfer regulation made under the *OWRA*, came into force. Together, these changes enable increased government oversight of water takings from the Great Lakes–St. Lawrence River Basin, including new or increased transfers of water between Great Lakes watersheds.

Water Takings and Transfers in the Great Lakes

Ontarians depend on the fresh water resources of the Great Lakes for many aspects of their lives: for drinking, agricultural purposes, industrial processes and recreation. The Great Lakes are also critical to sustaining healthy ecosystems. But the water resources of the Great Lakes–St. Lawrence River Basin are not infinite. The ever-growing demand on fresh water supplies, coupled with the anticipated effects of climate change, threatens Great Lakes water levels, putting at risk ecosystems, drinking water sources, and fishing and shipping industries essential to Ontario's economic prosperity.

For all these reasons, Ontario's water resources – and, in particular, withdrawals and transfers of water from one watershed to another – need to be managed wisely. While a permit has long been required to take more than 50,000 litres of water per day, until recently there were no formal restrictions on the movement of water from one watershed to another within the basin ("intra-basin transfer"). An intra-basin transfer occurs any time that water is taken from one watershed and moved to another watershed – even if the water is subsequently returned to the original watershed. Intra-basin transfers can lower water levels within an individual watershed, potentially putting stress on its ecosystems.

The Great Lakes–St. Lawrence River Basin Sustainable Water Resources Agreement

Recognizing their shared duty to protect, conserve and manage the waters of the basin, the Premiers of Ontario and Quebec and the Governors of the eight U.S. States bordering the Great Lakes signed the *Great Lakes–St. Lawrence River Basin Sustainable Water Resources Agreement* (the "Agreement") in December 2005. The Agreement requires the parties to take measures to ensure the sustainability of the region's water resources. In particular, the parties agreed to ban out-of-basin water transfers, and to regulate water takings and transfers from and within the basin.

Safeguarding and Sustaining Ontario's Water Act, 2007

In 2007, to fulfil its commitments under the Agreement, the provincial government passed the *Safeguarding and Sustaining Ontario's Water Act, 2007*. The statute made numerous amendments to the *OWRA*, including provisions (that were not proclaimed until 2015) that enable the management of intra-basin transfers. In particular, the *OWRA* now prohibits new or increased intra-basin transfers of over 379,000 litres per day, unless the proponent meets requirements for obtaining a permit; these include, in most circumstances, that the water is returned after use to the same watershed from which it was taken.

Establishing the Boundaries of Great Lake Watersheds

One of the most significant additions to the water taking and transfer regulation (O. Reg. 387/04) is that it defines the boundaries of the Great Lakes watersheds to include both their upstream and downstream connecting channels (see Table 3.1.1.1). By defining the watershed boundaries this way, the movement of water from a Great Lakes watershed to its connecting channels is not considered an intra-basin transfer and, therefore, is not subject to the legislated restrictions on such transfers. Further, the regulation exempts all transfers between the watershed of a Great Lake and a *watershed* of its downstream connecting channel, as well as certain transfers between the St. Lawrence River and Lake Ontario.

Table 3.1.1.1: Great Lakes Watersheds and their Upstream and Downstream Connecting Channels, as defined in O. Reg. 387/04 (Water Taking and Transfer).

Great Lakes Watershed	Upstream Connecting Channels	Downstream Connecting Channels
Lake Superior	Not Applicable	St. Mary's River
Lake Huron	St. Mary's River	Detroit River Lake St. Clair St. Clair River
Lake Erie	Detroit River Lake St. Clair St. Clair River	Niagara River
Lake Ontario	Niagara River	Not Applicable

The definition of the Great Lakes watershed boundaries, and the broad exemptions for other transfers noted above, could allow significant movements of water within the Great Lakes–St. Lawrence River Basin, potentially affecting water levels. In a 2009 discussion paper, the Ontario government explained that this approach to defining watershed boundaries would "address situations where communities take water from a Great Lake and discharge it to a downstream connecting channel" – presumably a reference to municipalities that divert water in that manner as part of their drinking water systems. However, the definition and exemptions go well beyond accommodating the needs of particular users that may need to rely on such transfers. A more targeted approach would have been for the province to create specific exemptions for certain types of users, while still regulating other, potentially large, new or increased movements of water within the basin.

Water takings that involve movements of water, but that do not qualify as intra-basin transfers under the *OWRA*, will still require a permit for the water taking. When considering such a permit application, the Ministry of the Environment and Climate Change Director must consider such factors as the amount of water that will be lost through consumptive use and the return of water after use. However, there is no guarantee that this consideration will prompt the Director to impose conditions in a permit equivalent to the restrictions and environmental protections applicable to intra-basin transfers under the *OWRA*.

For a more detailed review of this decision, please refer to Section 1.2.6 of the Supplement to this Annual Report.

For more information about Ontario's Permit to Take Water Program, please refer to Parts 3.3 and 3.4 of this Annual Report.

Comments from the MOECC

Ontario's approach to defining Great Lakes watersheds and connecting channels for the purpose of regulating intra-basin transfers is the same as other jurisdictions surrounding the Great Lakes.

Water takings that are not intra-basin transfers remain subject to all applicable requirements of the *Ontario Water Resources Act* and the Water Taking and Transfer Regulation, including the requirement to consider potential impacts on water levels.

3.2 A Problem Too Big to Ignore: Microplastics in the Great Lakes

Many of the comforts and advantages of contemporary life are made possible through the use of plastics. Most Ontarians use countless plastic items every day, affecting almost every aspect of their lives. Encompassing a large family of synthetic and semi-synthetic materials, plastic is cheap, malleable and relatively durable. Consequently, it is a popular material choice for not only clothes, electronics, toys, furniture and personal items, but also many intentionally disposable products, such as packaging, drink bottles and take-out containers.

The pervasiveness of plastic has led to an abundance of discarded plastic products throughout the natural world, particularly in aquatic environments. Although it is impossible to reliably estimate the exact amount of plastic in the world's waterways, the problem is extremely widespread with plastic debris reaching the most remote corners of the planet, from the polar regions to the equator.

Much research on plastic pollution in marine environments has explored the environmental effects of microplastics, a term generally applied to particles 5 millimetres or less in diameter. Notable sources of microplastic include:

- microbeads used in personal care products, such as exfoliants in body washes and smoothing agents that give creams and other products a silky texture;
- "scrubbers" in air-blasting formulations (i.e., the hard plastic abrasives blasted against a surface to clean it or remove paint or finish);
- resin pellets used in industrial facilities, where they would be reformed into specific products, such as bottles, bags or toys;
- plastic fibres shed from synthetic (e.g., polyester) fabrics; and
- fragments resulting from the breakdown of larger plastic items (often called "secondary microplastics").

In addition to continuing work on marine environments, scientists have recently started researching the prevalence of microplastics in freshwater ecosystems.

MICROPLASTICS IN THE GREAT LAKES

Freshwater microplastic research in North America to date has focused almost exclusively on the Great Lakes. Though limited in number, these studies confirm that plastic is commonly found in the lakes and along their shorelines. For example, shoreline surveys conducted by university researchers, which count and categorize plastic found along beaches, identified thousands of plastic particles within a beach area of only 85 square metres on Lake Huron. Similarly, surface water surveys in Lakes Superior, Huron and Erie found an average abundance of over 43,000 plastic particles per square kilometre of water (particles/km^2). Lake Erie surveys found dramatically higher particle counts than the average, with one sample amounting to 463,423 particles/km^2 – one of the highest counts reported in the world.

Moreover, all of these surveys found that microplastics accounted for a high percentage of all plastic particles collected. At the high end, the Lake Huron shoreline study found that microplastic pellets accounted for 93 per cent of all plastic particles collected. The researchers noted that these pellets resembled the resin pellets used in industrial applications and theorized that nearby industrial operations were the likely source. In the surface water survey, 81 per cent of all particles collected were less than 1 millimetre in diameter. The researchers speculated that many of these particles were likely microbeads used in personal care products. They also found significant numbers of small fragments resulting from the breakdown of larger plastic items.

Moreover, the Ministry of the Environment and Climate Change (MOECC) has reported that its own surface water surveys have revealed that some areas of Lake Ontario have loads up to 6.7 million particles/km^2. Ministry researchers reported finding plastics from a diverse range of sources, but particularly fragments resulting from the breakdown of larger plastic items.

GROWING CONCERN ABOUT THE EFFECTS OF MICROPLASTIC IN THE NATURAL ENVIRONMENT

Microplastic pollution in aquatic ecosystems poses several environmental hazards. Of greatest concern is the potential for a range of organisms, including the very small organisms at the base of the food web, to ingest microplastics. Although freshwater-specific research is limited, one study has confirmed that microplastics smaller than 55.5 micrometres are "prone to ingestion by a wide range of freshwater invertebrates originating from different habitats and different functional levels." This is consistent with laboratory research showing that microplastics ranging in size from two micrometres to two millimetres are ingested by a wide range of small marine organisms, such as zooplankton and invertebrates.

Larger animals, such as crustaceans, fish and seabirds, are also known to ingest microplastics, either through direct consumption or as a result of eating smaller organisms that have already consumed microplastic particles; one study found that particles in fish were most often between 1 and 2.79 millimetres in diameter. Some researchers have expressed concern that microbeads and pellets, which come in a range of sizes under five millimetres, resemble fish eggs, which are a food source for numerous organisms. This similarity may lead animals to intentionally consume plastic believing it to be food.

Plastic ingestion is dangerous because it can block or hinder the passage of food through the digestive system, or reduce feeding by making the organism feel full. In addition, extremely tiny pieces of plastic (less than 150 micrometres) have been shown to move out of the digestive system into other parts of the body through a process called microplastic translocation. Further study is needed to determine and understand any potential negative consequences of such translocation, for both the organism and for any individual that feeds on it.

Consuming plastic may also introduce toxic compounds into both individual organisms and the food web. Although more research is needed to understand precisely how plastic-related contaminants behave in freshwater (as opposed to marine) environments, it is well established that certain toxics, such as phthalates and bisphenol A, can leach from plastic. According to one study, many common plastic additives "may interfere with biologically important processes, potentially resulting in endocrine disruption, which in turn can impact upon mobility, reproduction and development, and carcinogenesis [i.e., the development of cancer]" when consumed. Microplastics may be particularly potent when it comes to leaching out toxic compounds because of their relatively high surface-area-to-volume ratio.

Plastics may also carry toxics in the form of contaminants that have attached (or "sorbed") onto a plastic particle. Again, because of their high surface-area-to-volume ratio, microplastics may be particularly likely to attract a variety of pollutants commonly found in water, such as aqueous metals, endocrine disrupting chemicals and persistent organic pollutants, such as polychlorinated biphenyls (PCBs). These toxics may then be released inside the organism when a plastic particle is ingested, directly exposing the individual to the pollutant. Persistent organic pollutants can be especially toxic, inducing endocrine disruption, genetic mutations and cancer. Persistent organic pollutants, as well as other toxic materials, can also bioaccumulate, meaning they concentrate within an individual over time. As a result, these toxics may then be transferred, and potentially biomagnified, up the food chain as smaller contaminated organisms are consumed by larger animals, including humans.

Other environmental risks associated with microplastics include the potential to facilitate the spread of invasive species and pathogens; researchers have observed that certain micro-organisms can attach to, and be transported by, microplastic particles to extremely remote locations.

Regulatory Challenges

It is a challenge to address microplastic pollution because of the variety of plastic sources. Different types of plastic reach the aquatic environment through various pathways, meaning that a diversity of strategies are needed to stop plastic pollution at the source. For example, researchers have speculated that resin pellets originating at industrial facilities likely enter waterways after spilling into storm drains during transport and off-loading, or by washing down factory floor drains during clean up. Microbeads from personal care products, however, are designed to wash away with the bathwater, after which they pass through wastewater treatment systems and discharge directly into waterways. In the case of microplastic fragments resulting from the breakdown of larger plastic items, the cause may simply be a failure to properly dispose of litter.

Further challenges arise in the provincial context from the current lack of information; freshwater-specific research has only begun to emerge in the past few years and Ontario-specific data is currently limited to a handful of research undertakings. As a result, much remains to be determined about precise sources and the pathways by which microplastics are deposited into lakes (i.e., where specifically does the plastic originate and how does it travel from there to a lake). Additionally, almost nothing is known about the extent to which Ontario lakes other than the Great Lakes are affected by microplastics. Without such information, it is difficult to know where prevention and clean-up efforts should be focused. More broadly, further research is needed to better understand how toxic compounds associated with microplastics bioaccumulate and biomagnify, so as to better evaluate risks to individual organisms (including humans) and ecosystems.

Finally, like many other environmental problems, such as air pollution and climate change, reducing aquatic plastics depends heavily on interjurisdictional co-operation. Because plastics are highly mobile in aquatic environments, particles can easily travel thousands of kilometres across borders. In the case of the Great Lakes, Ontario shares these waters with several U.S. states, meaning that any solution will require action by national and subnational governments in both countries.

Initiatives to Reduce Microplastic Pollution

The wide variety of sources has not stopped efforts to limit one known form of microplastic pollution; in recent years, international campaigns to remove or ban microplastic beads from personal care products have gained strong momentum. As a result, several large companies, such as Unilever, L'Oréal and Johnson & Johnson, have voluntarily agreed to phase out the use of microplastics in their products, with deadline commitments ranging from 2014 to 2017; Canadian grocery retailer Loblaw has also committed to phasing out the use of microbeads in its in-house products (Life Brand and President's Choice) by 2018.

Furthermore, in July 2015, the federal government announced that it would propose adding microbeads to the list of toxic substances under the *Canadian Environmental Protection Act, 1999* and that it was developing associated regulations to prohibit the manufacture, import and sale of products containing microbeads. In addition, a private member's bill was introduced in Ontario's legislature in early 2015 that, if passed, would ban the manufacture and addition of microbeads to products in Ontario. Similarly, several U.S. states bordering the Great Lakes have passed or are considering legislation banning the use of microplastic beads in personal care products.

However, other than the handful of jurisdictions that now regulate microbeads, there are few (if any) laws in the world that specifically address land-based sources of microplastic pollution. Rather, most jurisdictions in Canada and around the world rely on broad-scope anti-littering and pollution-control laws to address sources like resin pellets and wayward garbage. In Ontario, for example, section 14 of the *Environmental Protection Act* prohibits the discharging of any contaminants into the natural environment that may cause adverse effects, such as the impairment of the quality of the natural environment. As such, this prohibition would likely apply to at least some incidents of plastics being released into Ontario's lakes and rivers.

There are also a variety of voluntary guidelines aimed at reducing plastic pollution from various sectors. For example, the American Chemistry Council's *Operation Clean Sweep* is a resin pellet product stewardship program

seeking to assist companies to implement good housekeeping and containment practices to keep pellets out of the natural environment.

Continuing Research in Ontario and Beyond

The Government of Ontario, through the MOECC, is involved in ongoing research initiatives, including projects relating to evaluating plastics in Lake Ontario and wastewater treatment plant discharges. Furthermore, many of the academics responsible for the Great Lakes-specific research discussed above are based in Ontario; some of their ongoing work, such as sediment surveys of Lake Ontario, also involves the governments of both Ontario and Canada.

Other U.S.-based research will undoubtedly assist Ontario scientists in government and academia; these ongoing projects include surface water surveys of Lake Ontario and Lake Michigan and an assessment of discharges from wastewater treatment facilities. In addition, researchers at the University of Michigan are working to establish a "long-term multi-disciplinary research platform to assess the impact of microplastics on Laurentian Great Lakes ecosystem health."

ECO COMMENT

Although the environmental consequences of plastic pollution are wide ranging and largely well known, freshwater microplastic pollution is a less-understood – but growing – concern, particularly in the Great Lakes basin. Recent research suggests that areas of Lake Ontario and Lake Erie contain millions of tiny plastic particles/km^2, and that these particles pose risks to both individual organisms and the entire Great Lakes food web, which includes many Ontarians.

When it comes to actions aimed at systematically stopping the escape of microplastics into waterways, most of the media attention and public campaigning on the issue has focused on banning microbeads in personal care products. While the resulting phase-out of these particles is praiseworthy, this strategy only addresses one source of plastics and will take years to fully implement. Such action is part of the solution, but will not solve the problem.

Consequently, Ontario must do more. It is encouraging that the MOECC is already dedicating resources to ongoing research projects aimed at evaluating the volume and sources of microplastics in the Great Lakes. This work is critical to any future efforts to prevent additional microplastics from entering Ontario's waterways, and the ECO commends the province for being on the forefront of research on this issue. This work should be complemented by additional provincial support for research into the ecosystem-level effects of microplastic pollution, including the biomagnification of toxics throughout the food chain.

Additionally, although Ontario's existing environmental laws generally prohibit polluting the natural environment, they are ineffective unless the source of pollution can be identified – something that is particularly tricky in the case of microplastics. As such, the ECO encourages the MOECC, as it identifies new information about plastic pollution, to readily apply its environmental laws and approvals to fight microplastic pollution at the source. For example, many facilities that use resin pellets likely already operate under an Environmental Compliance Approval, and the terms of such approvals could be amended to require protocols to prevent or minimize the release of pellets into water systems.

It must also be acknowledged that much microplastic pollution results from the breakdown of larger plastic items, many of which are likely improperly discarded garbage. Consequently, it is worth considering how littering laws can be strengthened. This issue was addressed in Section 2.2.12 of the Supplement to our 2012/2013 Annual Report, with a particular focus on the potential role for expanded extended producer responsibility programs. Additionally, the province, along with municipalities, should consider how to improve education and outreach efforts near waterways to reduce littering, as well as possible waste infrastructure improvements – for example, increasing the number of garbage and recycling bins along public and provincial park beaches.

Whatever actions Ontario takes in the coming months and years, provincial research and information on government actions must be shared and discussed with other jurisdictions. This will ensure that all governments with an interest in the Great Lakes have the best available information and can learn from best practices implemented elsewhere. Fortunately, there is already a strong history of collaboration between the U.S. federal and state governments, Canada and Ontario in the area of Great Lakes management.

Finally, solving this problem will also require Ontarians to act individually. The microplastic problem exists because of the pervasiveness of plastics. While plastics have improved the lives of Ontarians, they also impose an environmental cost. The best way to stem microplastic pollution, like all plastic pollution, is to be more thoughtful about where and when plastic is used and discarded. Fortunately, Ontarians can easily work to minimize the amount of plastic that ends up in the Great Lakes by reducing their use of plastic products, such as disposable plastic packaging. Just as individual microplastic pieces add up to a big environmental concern, these individual efforts, along with the efforts of academics, businesses and government, can come together to play an important role in successfully eliminating this environmental threat.

For a more detailed review of this decision, please refer to Section 4.3 of the Supplement to this Annual Report.

Comments from the MOECC

The Ontario government is committed to protecting and improving the Great Lakes ecosystem. We are in the process of conducting research and learning more about the sources of microplastics and their potential impacts on the Great Lakes. The ministry is working with researchers and other agencies in the Great Lakes region and around the world to determine what sources contribute plastic pieces to the Great Lakes, and whether the plastic ends up in sediments at the bottom of the lakes where organisms also live and feed.

A lot of concern has focused specifically on plastic microbeads in personal care products, such as facial scrubs, soaps and toothpastes, which are making their way into Ontario's aquatic environment. Some studies have demonstrated the potential for both physical and chemical harm to fish and other organisms due to ingesting these microbeads.

The ministry is currently considering options on how to regulate the use of plastic microbeads in Personal Care Products and non-prescription medication, in alignment with other jurisdictions.

We recognize that action on microbeads is an important first step in addressing the problem of microplastics accumulating in our lakes and rivers. We also realize that there are a range of solutions that will need to be applied to reduce microplastics over the longer term.

3.3 A Drop in the Bucket: Water-Taking Charge Falls Short of Recovering Costs

Many businesses, from golf courses to farming operations to food processors to manufacturers, take huge volumes of water from Ontario's aquifers, rivers, lakes and other waterbodies. While Ontario's freshwater resources may seem plentiful, there are limits to the amount of water that can be taken sustainably. Population growth, development pressures and the predicted effects of climate change (such as lower water levels and drier soils) make proper management and conservation of our water resources increasingly important.

Water takings are regulated by the Ministry of the Environment and Climate Change (MOECC) through the *Ontario Water Resources Act* (*OWRA*). Under this Act, no person or facility can take more than 50,000 litres of water on any day unless they obtain a Permit to Take Water (PTTW) from the MOECC, or fall under one of the Act's

Photo credit - Regional Municipality of York

exceptions. As of March 2015, there were over 6,000 active PTTWs, and the maximum volume permitted to be taken each year by all active PTTW holders totalled over 500 trillion litres.

Phase One of the Water-Taking Charge

In 2009, the MOECC began charging a small water-taking fee to certain PTTW holders under O. Reg. 450/07, Charges for Industrial and Commercial Water Users, made under the *OWRA*. The stated purpose of the water-taking charge is to recover a portion of the government's costs related to administering the *OWRA* and other acts for the purpose of promoting the conservation, protection, and sustainable use and management of Ontario's waters. The government charges "phase one" industrial and commercial water users $3.71 for every million litres of water used. Phase one industrial and commercial water users are facilities that take more than 50,000 litres of water on any day from a well, surface source, diversion or storage structure (e.g., canal, water tower), or municipal water supply, and that belong to one of the following categories:

- bottled water producers/manufacturers;
- beverage manufacturers;
- fruit and vegetable canning or pickling facilities;
- ready-mix concrete manufacturers;
- non-metallic mineral products manufacturers;
- pesticide, fertilizer and other agricultural chemical manufacturers; or
- inorganic chemical manufacturers.

For example, if a bottled-water manufacturer took 500 million litres of groundwater a year – enough water to fill 200 Olympic-sized swimming pools – the government would charge them $1,855 per year through the water-taking charge. For the ECO's review of the water-taking charge regulation, see Part 3.3 of our 2007/2008 Annual Report.

When it proposed the water-taking charge in 2007, the government stated that in the future the charge might also be applied to other commercial and industrial users, such as mining companies, iron and steel producers, pulp and paper producers, recreation facilities, and power producers (such as nuclear- or fossil fuel-powered plants).

2013 Water-Taking Charge Review

The water-taking charge regulation requires the MOECC to review the charge every five years and publish a report on the Environmental Registry. The purpose of the review is to determine whether the amount charged is appropriate given the costs the government incurs to administer the *OWRA* and other legislation to promote water conservation and management. The review must also assess what portion of those costs is attributed to phase one users.

The report was due by December 31, 2012; however, it wasn't until July 2013 that the MOECC posted an information notice on the Environmental Registry (#011-7811) containing the results of the ministry's review. The information notice included the government's annual water quantity program costs, the portion of those costs attributable to phase one users, and the annual revenue generated from the charge. These figures, along with a few sentences about considerations for a future review of the water charge policy, constituted the entirety of the mandated report.

Less than Five Per Cent of Program Costs are Attributable to Phase One Users

In the notice, the MOECC stated that the Ontario government spends approximately $16.2 million annually on water quantity programs, including managing water takings, monitoring water quantity and quality, and research. These programs are undertaken by the MOECC, the Ministry of Natural Resources and Forestry, and the Ministry of Northern Development and Mines.

The ministry stated that approximately $750,000 of the 2012 program cost of $16.2 million (i.e., less than 5 per cent) can be attributed to phase one water users (see Figure 3.3.1). The ministry attributed the remaining $15.45 million to administering other aspects of the program, including water-taking permits for water users not subject to the water-taking charge.

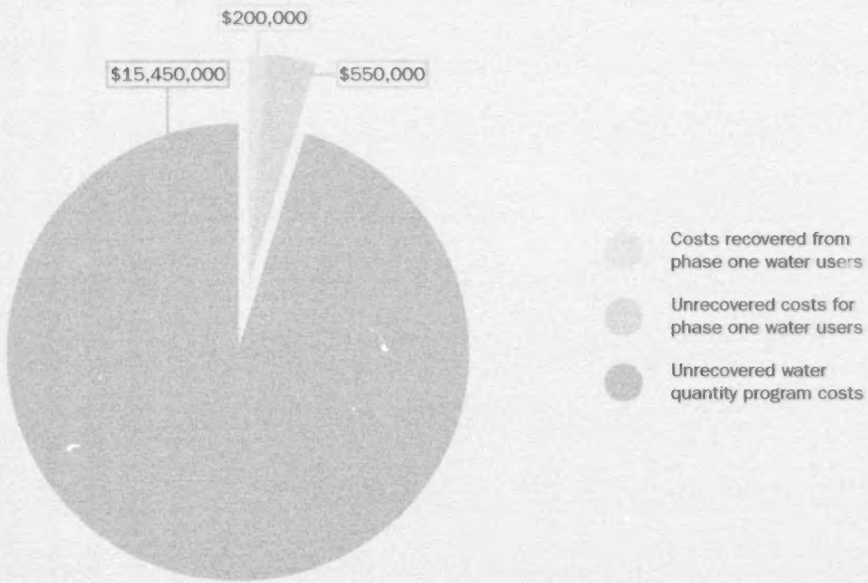


Figure 3.3.1: Water quantity program costs, 2012.

Charge Recovers Less than One-Third of Costs Attributed to Phase One Users

The MOECC reported that the current water charge rate of $3.71 per million litres generates approximately $200,000 a year from phase one water users. This amounts to a cost-recovery of 27 per cent of the government expenditures that relate to the sector charged.

The MOECC explained that the reason the current charge falls far short of recovering the government's sector-specific costs is that the rate was originally determined by dividing sector-specific costs by the maximum volume of water the phase one users were permitted to take. However, the actual volume of water taken by phase one users is much smaller. As a result, the government has been receiving less money through the water-taking charge than anticipated. Since 2008, all PTTW holders have been required (under O. Reg. 387/04, the Water

Taking and Transfer regulation made under the *OWRA)* to collect and report the actual volume of water they take annually to the MOECC. This data could now be used to update the charge rate to reflect how much water permit holders actually use.

Review Suggests Government Will Move Toward Fuller Cost Recovery

The MOECC referred in the information notice to a recommendation from the 2012 *Commission on the Reform of Ontario's Public Services* report (commonly referred to as the "Drummond Report") that the province "move towards full cost recovery and user-pay models for environmental programs and services," in part by revising the water-taking charge. The Drummond Report noted that expanding the charge to include medium-consumption (e.g., mining, construction, textile, wood production, metal production and recreational facilities) and low-consumption (e.g., electric power generation) users could increase the revenue it generates to almost $6 million, which would recover about 40 per cent of the government's water-quantity program costs.

The ministry also referenced the 2012 provincial budget, which stated the government would review the current water-taking charge to assess its adequacy and ensure that the program recovers costs as fully as possible. The government also discussed in the 2012 budget implementing "phase two" of the program to "apply the charge to most of the remaining industrial and commercial water users in Ontario." The government expected the expanded user-pay base would generate an estimated $3.5 million in 2013–2014 and $6 million in 2014-2015.

The MOECC did not commit to implementing phase two or adjusting the water charge rate during this review. Instead, the ministry concluded the information notice by stating, "the ministry will consider the findings of the review in future water charges policy development and will consult with stakeholders on future options for water charges." When the ECO asked about the status of this policy development, the MOECC stated that it is in the process of developing and evaluating options, and will consult on them in the future through the Environmental Registry.

ECO COMMENT

It has been over two years since the MOECC completed its first review of the water-taking charge, and over six years since the ministry first implemented the charge on phase one industrial and commercial water users. The ministry's 2013 review found that the current charge only recovers 1.2 per cent of the government's total water quantity management costs, yet the ministry has taken no further steps to redress this shortfall.

The ECO fully supported the introduction of the water-taking charge regulation in 2007 and the ministry's efforts to recover some of the costs of managing Ontario's water resources. However, we observed at that time that the rate was too low to create meaningful economic incentive for users to conserve water, and that it would fail to recover a significant portion of the water management costs attributed to phase one users. The ECO also noted that many sectors that are not charged for taking water have significant impacts on the province's water resources, including effects on fish communities and broader ecosystem dynamics.

Both the Drummond Report and the 2012 provincial budget advised the MOECC to recover the costs of environmental programs and services from the beneficiaries of those services – in this case, the water-takers. Similarly, in Part 3.3 of our 2007/2008 Annual Report, and again in Part 4.2 of our 2011/2012 Annual Report, the ECO encouraged the MOECC to make full-cost water pricing a priority. The ECO encouraged the ministry to expand the charge to other industrial and commercial water users, and to increase the charge to a rate that may actually motivate water takers to conserve water, and that reflects the full scope and true costs of the province's water management programs.

The first ministry review of the water-taking charge was an opportunity to expand the charge's scope and fiscal impact, as has been widely recommended. It is now past time for the MOECC to revise and expand the water-taking charge so it successfully fulfils its stated purpose of recovering government costs.

Effective stewardship of Ontario's water resources – including monitoring quality and quantity, assessing cumulative effects on drinking water supplies and ecosystems, promoting and enabling water conservation by industry and individuals, and conducting research into all of these and related fields – requires money, much more money than the MOECC's reported water quantity program costs of $16.2 million. The government should allocate additional resources to the conservation and wise management of Ontario's water resources. Its current stated expenditure of $16.2 million is a drop in the bucket compared to what a robust water management program requires.

RECOMMENDATION 4:

The ECO recommends that the MOECC increase the water-taking charge and expand its scope to apply to other water users, with a goal of recovering the full cost of the ministry's water management responsibilities.

Comments from the MOECC

The ministry agrees with ECO comments on the water-taking charge and is developing options for a charge framework that more fully supports and captures the costs associated with the conservation, protection and management of Ontario's water resources.

The ministry is conducting analysis and reviewing approaches and frameworks from other jurisdictions to inform options. The ministry will be consulting with stakeholders on future changes to water charges. Options will take into consideration that those benefiting from the use of water resources should be responsible for supporting the programs and initiatives that sustain and protect them.

3.4 Public Participation in Water-Taking Decisions

Water is a shared public resource in Ontario, whether it flows in streams, fills sparkling lakes or lies deep underground. Many kinds of users tap into the province's water, including municipalities that often rely on groundwater, as well as industries, farmers and individuals. Although Ontario is relatively water-rich, conflicts over water do arise, especially in areas of rapid growth. As a result, it makes sense to engage the public in decisions on water taking.

The Ontario Ministry of the Environment and Climate Change (MOECC) oversees all water takings, deciding who gets to take water and how much. The ministry's oversight is governed by section 34 of the *Ontario Water Resources Act* (*OWRA*), O. Reg. 387/04 (Water Taking and Transfer) under the OWRA and the 2005 *Permit To Take Water (PTTW) Manual*. The manual commits the ministry to:

- incorporating risk management principles;
- using an ecosystem approach;
- considering cumulative impacts; and
- promoting public and local agency involvement.

Most water users planning to take more than 50,000 litres a day must apply to the ministry for a Permit to Take Water. Since 2005, the ministry has evaluated the risks posed to the environment and other users by proposed takings; each application is deemed to be either low, moderate or higher risk, and the ministry gives most scrutiny to higher risk applications. The ministry issues permits with conditions and expiry dates, with terms ranging from months to 10 years.

Thanks to the *Environmental Bill of Rights, 1993* (*EBR*), the public also plays a role in many water-taking decisions. Since 1994, the *EBR* has ensured the Ontario public's right to know about and comment on certain categories of water takings. This right is based, in part, on the belief that when the public is involved and informed, the government makes wiser decisions. The mechanism for notifying the public is simple: the MOECC posts water-taking proposals on the Environmental Registry website. The public then has at least 30 days to comment on the proposal. Most such Registry notices generate no public comment, but some controversial water-taking proposals have drawn hundreds or even thousands of comments.

However, the ministry does not provide Registry notice to the public for all water-taking proposals. Due to regulatory exceptions under the *EBR* dating back to 1994, the MOECC posts only about one-quarter of all water-taking proposals on the Registry for public comment. These exceptions cover all municipal, agricultural and short-term (i.e., issued for one year or less) water takings. Given these broad exceptions, how robust is the public's opportunity to comment on water takings?

The ECO took a closer look at this question after raising it in several earlier reports (most recently in Part 4.2 of our 2011/2012 Annual Report). Specifically, we asked how well the *EBR*'s expectations about public participation and transparency are met by the ministry's consultation approach on water takings. The *EBR* expects the public to have the opportunity to comment on instruments that "could have a significant effect on the environment." The preamble of the *EBR* also states that "the people should have means to ensure that [environmental protection] is achieved in an effective, timely, open and fair manner."

One reason for this review is that, under the *EBR*, the ECO is required to review the use of the Registry. Water-taking permits make up a substantial portion – about 20 per cent – of all instrument decisions on the Registry.

There is also a good environmental reason for the ECO to examine the public's rights to comment on water takings. Ontario needs to keep a sharp eye on growing demands for water within the larger context of a changing climate, a rapidly growing population, and a built landscape that increasingly inhibits groundwater recharge (see box, "Signs of Stress: Declining Baseflows in Southern Ontario").

SIGNS OF STRESS: DECLINING BASEFLOWS IN SOUTHERN ONTARIO

Conservation authorities are on the front lines of protecting Ontario's watersheds. One marker of watershed health is the "baseflow" of streams (i.e., the water flow generated from groundwater) in fair weather. Baseflows are either predicted to decline or already showing declines in some Ontario subwatersheds due to a combination of pressures, including the paving over of natural landscapes and the increasing water demands of a growing population. Climate change will add further uncertainty.

For example, the Credit Valley Conservation Authority forecasts that baseflows for certain cold-water streams within its watershed may be reduced by 15 to 50 per cent by 2031, when planned population growth is factored in. Similarly, in some parts of the Grand River watershed, ecosystems are periodically stressed by low water levels. In Whitemans Creek (a stream that flows into the Grand River), water levels that are too low to sustain the creek's fish populations occur, on average, in one year out of three. Water flows for Whitemans Creek are heavily influenced by agricultural water takings from June through September. Two neighbouring creeks exhibit similar fluctuations.

The Lake Simcoe Region Conservation Authority has also observed a decades-long trend of gradually declining baseflow for the East Holland River, which flows through recently urbanized parts of Newmarket and Aurora (see Figure 3.4.1). As the natural landscape is paved over, less and less water can soak into the ground to replenish groundwater, and in turn, replenish the rivers.

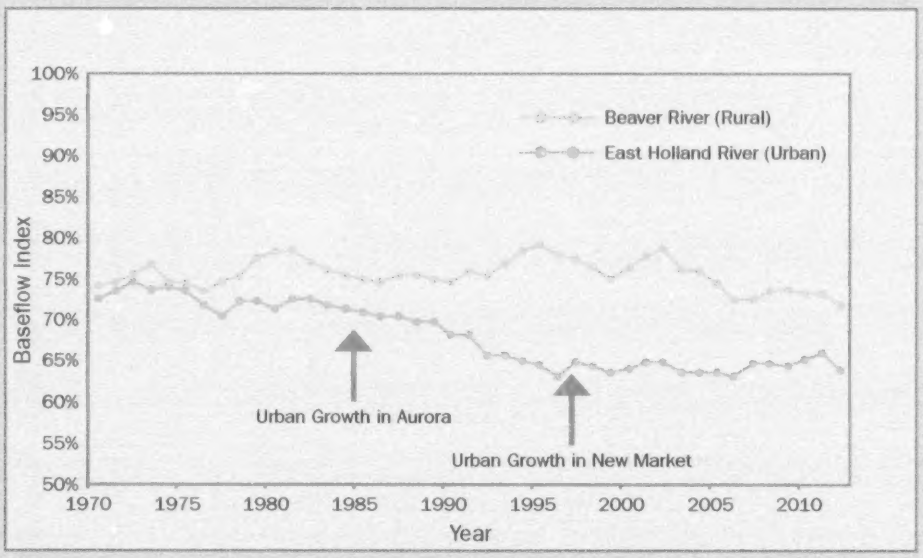


Figure 3.4.1. Baseflow index of the East Holland River and Beaver River for a 40-year period; there has been little urbanization of the Beaver River watershed and, as a result, the baseflow index has remained relatively stable. (Source: Lake Simcoe Science Newsletter, Lake Simcoe Region Conservation Authority, August 2013).

The ECO's Key Findings about Water-Taking Permits on the Registry

As part of this review, the ECO sampled Registry notices to assess the information available to the public about specific water takings. The ECO also reviewed ministry publications and written responses to our enquiries, as well as conservation authority reports and other documents, and interviewed several individuals knowledgeable about Ontario's management of water takings.

The ECO has found that the public is given only a very limited and skewed view of water takings in Ontario. The ministry posts an average of about 290 water-taking permits on the Registry each year, engaging the public's notice and comment rights. Very few receive comments; the public commented on an estimated eight per cent of water-taking permits posted on the Registry in 2014.

The MOECC Posts Registry Notices for Only a Small Fraction of Water Takings

As explained above, under existing *EBR* rules the public does not have the right to Registry notice or comment on an estimated 70–75 per cent of water-taking permits, since all municipal, agricultural and short-term permits are exempted from posting. Additionally, the MOECC informed the ECO in 2014 that it ranks a large percentage of these exempted water takings as high or moderate risk (see Figure 3.4.2).

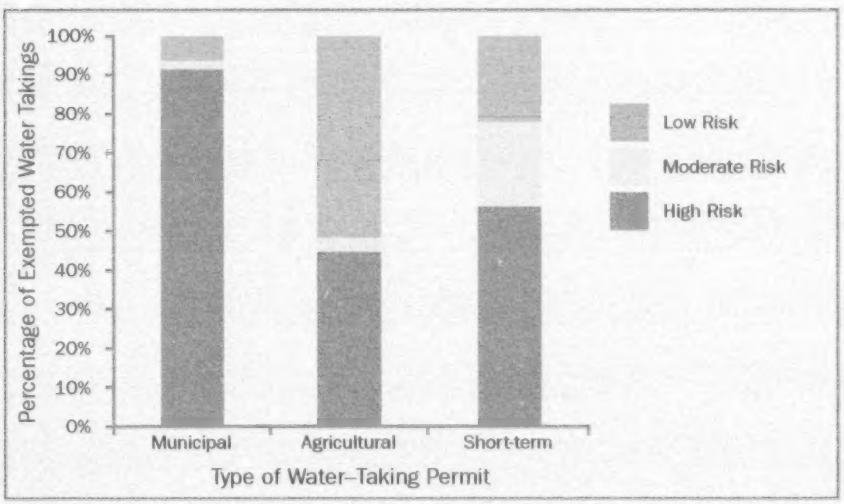
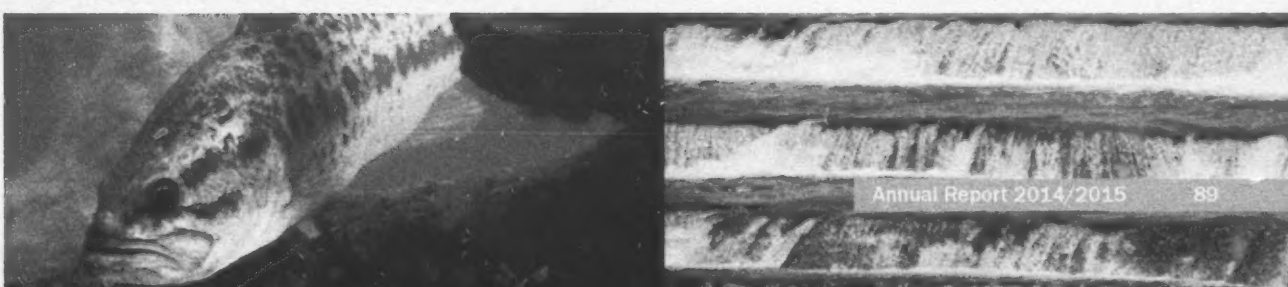


Figure 3.4.2. Environmental risk categories of water-taking permits exempted from the *Environmental Bill of Rights* notice and comment rights (Source: MOECC, November 2014).



In fact, notices for more than half of all high-risk permits (56 per cent) are not posted on the Registry, and more than three-quarters of all moderate-risk permits (76 per cent) are not posted (see Figure 3.4.3).

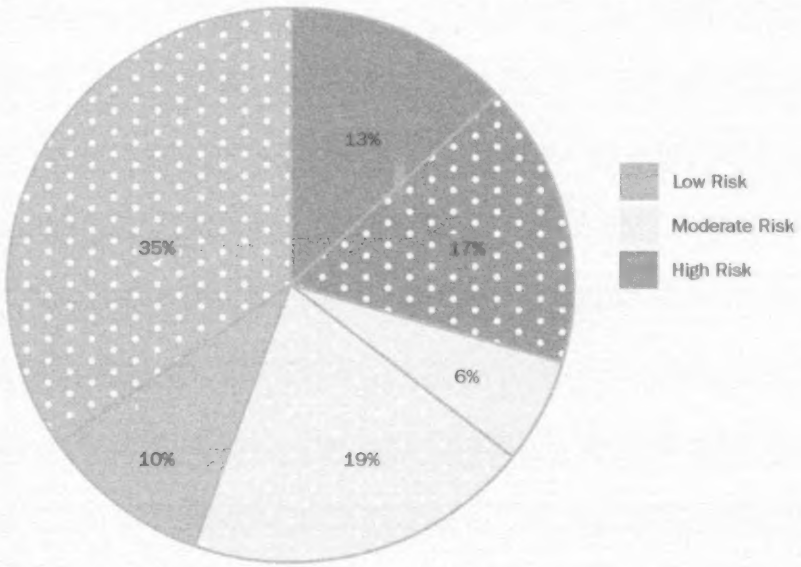


Figure 3.4.3. Percentage of water-taking permits, by risk category, that are posted (solid) and not posted (dotted) on the Environmental Registry for public comment (Source: MOECC, November 2014).

The ministry exempted this broad swath of water-taking permits in 1994, when the *EBR* first took effect, against the advice of the Task Force that originally designed the *EBR*. The *EBR* Task Force had recommended in 1992 that most water-taking permits be subject to the public right to notice and comment, and did not contemplate exceptions for either agricultural or short-term permits. Instead, the Task Force intended the public to have notice and comment rights for instruments "with the potential for significant environmental impact."

The *EBR* Task Force had different advice regarding municipal water-taking permits, because such permits constitute a step in implementing a project approved under the Municipal Class Environmental Assessment (EA) process. The *EBR* Task Force reasoned that the EA process already provided for public participation and advised in 1992 against posting notice of municipal permits on the Registry, since it would expose the proponents to "double jeopardy." Unfortunately, in the intervening years, the ministry has weakened many aspects of the EA process, including public participation rights (for a discussion of the weakening of the EA process, see Part 2.2 of the ECO's 2007/2008 Annual Report).

The MOECC Provides Only Limited Information in Registry Notices

A second problem is, the MOECC fails to share vital contextual information with Registry users for those proposals that it *does* post on the Registry. The ministry has been assigning a risk category to each water-taking application since 2005, based on risk to the environment and other users. But the ministry reveals the risk ranking for fewer than 20 per cent of water-taking proposals on the Registry. Moreover, the public cannot rely on the proposal notice to tell them what waterbody is being tapped; in 86 per cent of proposals sampled by the ECO, the ministry did not reveal the name of the stream, lake, aquifer or watershed from which the water would be taken.

Further, none of the water-taking proposals on the Registry sampled by the ECO offered links to contextual background information, such as a proponent's application or background hydrological studies, or to any relevant

published reports about the watershed's water quantity status. Instead, the public is invited to arrange a viewing of additional information by contacting the local ministry office. Finally, none of the water-taking proposals on the Registry reviewed by the ECO offered information about how the proposed water-taking volumes compare to local ecosystem capacities. Instead, the public is told what the maximum allowable water taking would be, in terms of thousands or even millions of litres per day – a metric that would require context for even experts to understand. New tools exist for evaluating the ecological impacts of water takings, but it's not clear how the ministry is using them (see box, "New Ways to Understand Water Quantity").

The MOECC Frequently Posts Decision Notices Late

Timeliness is also a problem. The ministry does not ensure that the Registry is an up-to-date source of information on the approval of proposals; in some cases, the ministry has waited up to four years before notifying the public of a water-taking approval. For about one-third of permits sampled by the ECO, the ministry waited in excess of a year to let the public know that it had made a decision.

The Ministry of the Environment and Climate Change (MOECC) is planning to change the way it approves short-term water takings, as outlined in a notice posted to the Environmental Registry (#012-0580) in March 2015. The ministry's proposed approach would create a new approval path for certain short-term water takings, including certain types of construction projects and wetland restoration projects. Specifically, projects where water is not withdrawn from its source but instead diverted and returned would no longer be considered water takings by the ministry. Instead, proponents would register their activity on the ministry's Environmental Activity and Sector Registry and follow a standardized set of rules set out in regulation (for the ECO's most recent discussion of this Registry, see Part 5.2 of our 2012/2013 Annual Report). The ECO will monitor the progress of this proposal.

ECO COMMENT

The ECO has found that many higher-risk water takings are not subject to the public notice and comment rights of the *EBR*. Ontarians need to be informed about such water takings, and they need to have a say in the decision making. Ontario's water demands will grow with the population, and climate change will alter water regimes in unpredictable ways. Under these twin pressures, public interest in water taking is bound to grow, and indeed a vigilant public will be vital in helping to shift water use toward more sustainable approaches.

Given the high-risk levels and the large volumes of water that are often attributes of municipal, agricultural and short-term water takings, it is time for the MOECC to re-examine the outdated blanket exemptions that shroud so many high-risk water takings from public scrutiny. These exemptions are not in keeping with the ministry's own *Permit To Take Water (PTTW) Manual*, which espouses principles of risk management and public involvement. As well, the ECO does not believe these exemptions meet the intent of the *EBR* because they prevent public input on proposals that "could have a significant effect on the environment." The ministry could use a provision of the *EBR* itself (section 21) to review which permits and other approvals should be subject to the *EBR*'s rights to notice and comment.

Furthermore, for those water-taking proposals that do appear on the Registry, the ministry should provide adequate background context to allow for informed public comment. This concern has been raised by members of the public who have commented on water-taking proposals. Given the scant information currently offered in proposal notices, it is remarkable that the public makes the effort to comment on even eight per cent of water-taking proposals.

It is also troubling that the public cannot rely on timely Registry notice once permits have been approved. The MOECC's lengthy delays in posting many decisions unreasonably force the public to monitor the Registry over the long term if they hope to track a proposal or exercise their legal appeal rights under the *EBR*.

In summary, the ministry's consultation approach on water takings is not acceptable, because it exempts many high-risk water takings from public comment, it provides inadequate information on those proposals that are open to public comment, and it involves excessive delays in the posting of many decision notices. This approach does not meet the *EBR*'s intent that ministries make environmental decisions in an "effective, timely, open and fair manner." Minimal first steps would be for the MOECC to clearly state risk levels and to identify the intended source of water in proposed permits; then, when the MOECC makes a decision, actually let the public know in a timely fashion.

Comments from the MOECC

The ministry agrees to review the content of Permit to Take Water (PTTW) information notices to determine if additional information should be included in the notices, including the source of water.

The ministry will be developing a procedure to ensure timely posting of PTTW decision notices on the Environmental Registry.

With respect to broadening the categories of permits posted for comment, the ministry recently amended the Classification of Proposals for Instruments Regulation [O.Reg. 681/94], under the EBR, to make proposals that transfer water from one Great Lakes watershed to another subject to posting on the Environmental Registry.

In addition, the ministry relies upon the public consultation process available through postings on the [Environmental Registry] as an integral part of the development of all potential candidates for consideration of utilizing the Environmental Activity and Sector Registry (EASR). From March 6 to April 20, 2015 the ministry posted a technical discussion paper on [the Environmental Registry] involving short-term water takings relating to 1) construction dewatering and 2) surface water takings required in road construction and maintenance. The technical paper sought comments on a proposal to move these activities to a self-registration process on the EASR. All comments received will be considered.

The ministry values public participation. We will continue to work with industry, stakeholders and the public to ensure compliance with environmental standards and to seek input to proposals.

3.4.1 New Ways to Understand Water Quantity: Tools the Ministry Could Use to Inform Permitting Decisions

Increasingly sophisticated tools for managing water quantity within watersheds have become available over the last decade. Unfortunately, it is unclear how, or even whether, the Ministry of the Environment and Climate Change (MOECC) is integrating these new tools into the day-to-day approvals of water takings. The ECO, conservation authorities and practitioners have all raised this concern since the province launched the Source Water Protection program in 2006 to protect municipal drinking water sources. For example, a 2014 article in the *Canadian Water Resources Journal* raised questions about Ontario's ability to integrate new water knowledge:

> The data, knowledge and understanding that have been gained through Source Water Protection (SWP) are in danger of winding up on the shelves if a concerted effort in knowledge management is not undertaken. Has the overall technical knowledge gained through SWP been adequately transferred to the public?

The ministry's own principles, adopted in 2005 to guide water quantity management, commit the ministry to:

- incorporate risk management principles;
- use an ecosystem approach;
- consider cumulative impacts; and
- promote public and local agency involvement.

To live up to these principles, the ministry needs to integrate the many new information systems now at its disposal for evaluating water-taking applications. It is no longer good enough to make thousands of one-off decisions on water takings each year without an eye on the bigger picture, including water budget information and ecological needs, as described below.

Water Budgets: To protect municipal drinking water sources, the *Clean Water Act, 2006* required that water budgets be prepared for each of Ontario's 38 Source Protection Areas. A water budget accounts for all water moving into and out of a watershed. It also describes the process and pathways by which water flows through a watershed. Water budgeting was an expensive, but worthwhile, exercise since it offers water managers a powerful new tool. Water budgets could: better inform decisions on water-taking applications; help with target setting for water allocation and water conservation; and support decisions on residential development, stormwater management and irrigation. However, the ministry needs the expertise and capacity to interpret water budgets meaningfully and harness their informational power. Ideally, the public could also benefit from plain-language summaries of water budgets when commenting on water-taking proposals on the Registry. Currently, Ontario's water budget documents – some running over 900 pages – are geared to experts. By contrast, California has responded to its current extreme drought with plain-language public updates on high-stress watersheds.

Environmental Flow Requirements: How can watershed managers allocate water to multiple users and still protect ecosystems, ensuring that plants and animals experience more or less natural seasonal patterns of water flow? Scientists and managers in many jurisdictions are grappling with this question by developing "environmental flow" requirements. Several U.S. states (Michigan, Rhode Island and Connecticut) have found ways to translate environmental flow criteria into statewide water management programs. In Ontario, the Lake Simcoe Region Conservation Authority and the Grand River Conservation Authority are both leading research on protecting environmental flows. The MOECC has provided some research funding, but seems far from issuing policy guidance on environmental flows. One practical consequence is that when members of the public see water-taking proposals on the Registry, they have no way to gauge how the proposal might affect environmental flow regimes.

Data on Actual Water Takings: The ministry now knows how much water permit holders take on a daily basis. Permit holders have been required to report their actual daily water takings since 2008, and the ministry says it has received over 90 per cent of reports for 2013. This is very useful information, since there is often a big difference between the maximum permitted volumes allowed in a permit and the amount of water actually taken.

The database could be used to: identify best performers in water conservation; analyze cumulative impacts; and/or create watershed-based inventories of water use. Unfortunately, the ministry has not explained how it will use this database. Nor does the ministry share this information with the public.

Comments from the MOECC

The ministry agrees and does take a variety of information sources, including water budgets, into consideration when reviewing PTTW applications.

The ministry will consider improving access to permit holders' submitted water taking data, and showing how these data are used to enhance water resources management.

3.5 Ontario Ensures Experimental Lakes Research Will Continue

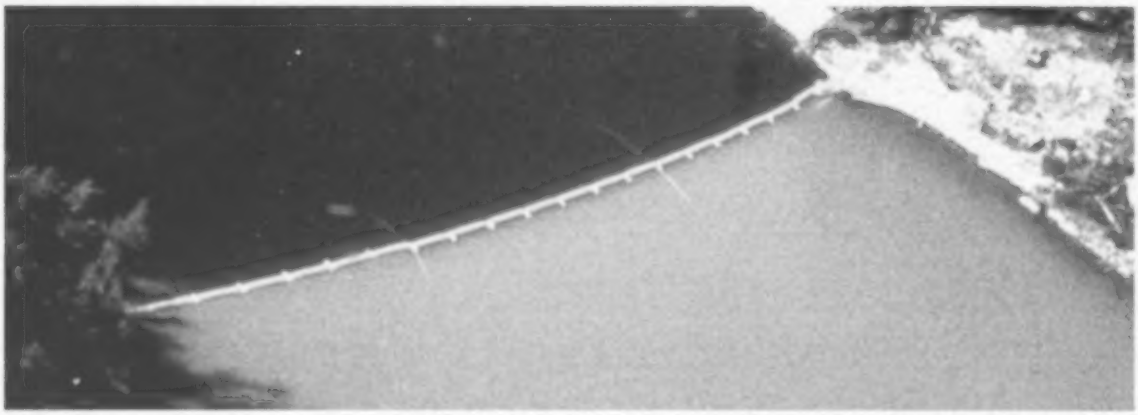
In May 2012, headlines across the country reported the Government of Canada's decision to stop funding the Experimental Lakes Area (ELA), a unique experimental research centre in northwestern Ontario. Even among a long list of recent federal cuts to scientific research funding, this particular act stood out. Scientists and lay-people across Canada, along with a number of international academics, decried the loss of what is widely considered to be one of the most important freshwater research centres in the world. They all called for a solution that would see the ELA continue operating.

After many months of negotiations, the Government of Ontario announced in April 2014 that it had reached an agreement with the federal government and the International Institute for Sustainable Development (the "Institute") to preserve the ELA. Under this new arrangement, Ontario would provide up to $2 million per year in funding, and the Institute would oversee operational management of the ELA. As part of this arrangement, the provincial government passed two new regulations under the *Environmental Protection Act* (*EPA*) and the *Ontario Water Resources Act* (*OWRA*) to exempt authorized ELA experiments from some provisions of the *EPA* and *OWRA*. These exemptions allow research that would otherwise be prohibited under Ontario's environmental laws to continue at the site under certain conditions.

A Legacy Decades in the Making

Founded in 1968, the ELA is a research facility located on a collection of 58 small lakes and drainage basins, approximately 50 kilometres southeast of Kenora, Ontario. The location was chosen because it meets unique geographic criteria. There is a high density of small lakes deep enough to experience thermal stratification (the separation of a lake into different temperature layers), which is an ecosystem characteristic common in larger, deeper lakes. In addition, the area's Precambrian Shield bedrock allows for few groundwater connections, meaning the lakes and their drainage basins are largely self-contained systems that are easier to control and study. Additionally, its isolated location leaves the area relatively unaffected by external human influences. These factors combine to make the ELA an ideal natural laboratory where long-term, whole-ecosystem research and monitoring work can be undertaken.

The ELA was initially created as a site for research into human-caused (as opposed to naturally occurring) eutrophication, the blue green algae-producing phenomenon that has long-plagued Lake Erie. In the 1960s, scientists suspected that high levels of an unknown nutrient or mineral were to blame, but no one had identified the controlling factor. Over several years, ELA scientists added different contaminants to a number of lakes. Eventually, they split Lake 226 with a plastic divider curtain and added phosphorus – a nutrient common in detergents and fertilizer – to only one side; when that half turned bright green with algae, the scientists had their answer.



Lake 226 in August 1973. The bright green colour results from blue green algae, which is growing on the phosphorus-enriched side of the curtain. (Photo credit - IISD Experimental Lakes Area Inc.)

A photograph of the sharply divided lake has been called the "single most powerful image in the history of limnology." This research provided the scientific basis for a phosphate control program in the Great Lakes–St. Lawrence River basin, and for restrictions on phosphate-containing detergents in Canada and around the world.

The ELA has also been at the centre of research into the adverse ecosystem effects of lake acidification, which results from acid rain. In one experiment, scientists added sulfuric acid to an entire lake, incrementally raising the acidity level over an eight-year period. The researchers found that it took less acid than previously believed to seriously disrupt the ecosystem, including food web interference and halting the reproduction of some species. This work is widely credited with influencing the development of the *Canada-United States Air Quality Agreement* to address the transboundary air pollution that leads to acid rain.

More recently, researchers mimicked the impacts of atmospheric mercury on lake ecosystems by adding mercury to an ELA lake and the surrounding wetland. When the researchers raised the mercury load in the lake to levels found in polluted regions (increasing the average annual mercury load by 120 per cent), the concentration of mercury in the lake's water and biota grew by 30–40 per cent as a result. This work provided a better understanding of how fish populations are affected by atmospheric mercury under different background conditions, as well as how mercury concentrations decrease as mercury loadings decline; this information can help regulators set appropriate mercury emission controls.

In addition to the examples above, the ELA has hosted numerous other research projects undertaken by government scientists, university researchers from across Canada and around the world, and even private industry. These include experiments on: the negative impact of birth control hormones on fish populations; the increased generation of greenhouse gases as a result of hydroelectric dam-related flooding; and the impacts of aquaculture on native fish habitats and populations.

Ongoing environmental monitoring throughout the ELA's history has also yielded a rich dataset of baseline information about: physical lake characteristics; watershed hydrology; air, precipitation and lake water chemistry; and food web composition and abundance.

This research is detailed in over one thousand peer-reviewed articles, research papers and other publications. It has led to the reshaping of both national and international policies on a range of environmental issues. Scientists and policy makers around the world have acknowledged the importance of the work conducted at the ELA for enhancing environmental expertise, improving lake and reservoir management, and better protecting the environment.

New Regulations to Support ELA Research

In anticipation of the transfer of authority for the ELA from the federal government to the province, the Ministry of the Environment and Climate Change introduced two new regulations in March 2014: O. Reg. 60/14 (Experimental Lakes Area) under the *EPA* and O. Reg. 61/14 (Experimental Lakes Area (Water Resources)) under the *OWRA*. Together, these regulations create a process to authorize ELA research projects that might otherwise violate the *EPA* and the *OWRA*, for example, by releasing a contaminant into a lake in order to observe its effects. In announcing these regulations, the ministry explained that an explicit provincial regulatory mechanism was needed to ensure appropriate environmental oversight at the ELA now that it was no longer federally managed.

Under the new regulations, ELA experiments can receive an exemption from certain provisions of the *EPA* and the *OWRA* by first obtaining a "statement of authorization." A statement of authorization requires that the project be approved as scientifically meritorious by an expert panel convened by the ELA operator, the Institute. Researchers must also demonstrate that the project will not have an adverse impact beyond the designated lake or lake catchment area where the experiment will be carried out, and will not cause irreparable harm to the natural environment. Researchers must also prepare written plans that address public notice, monitoring, management, remediation (if necessary) and emergency response requirements for the experiment.

Once a statement of authorization has been issued, certain sections of the *EPA* (as set out in O. Reg. 60/14) and *OWRA* (as set out in O. Reg. 61/14) do not apply to the experiment. These include provisions that: prohibit contamination and discharge of polluting material and/or sewage; allow orders and injunctions to be issued; require parties to notify the ministry of contamination and spills; require approval of a facility or production process; require approvals for sewage works or the taking of water; and bestow a duty to mitigate and restore the environment from environmental damage.

Ontario Regulation 60/14 also provides for the issuance of a "statement of non-authorization," which revokes an experiment's statement of authorization, meaning the experiment is no longer exempt from provisions of the *EPA* and *OWRA*. The Director is required to issue a statement of non-authorization if he or she believes that an experiment poses a significant risk of irreparable harm to the natural environment or has caused an adverse effect outside the experiment area. Similarly, experiments that are not being properly monitored for these problems will be shut down.

ECO COMMENT

The ECO strongly supports Ontario's efforts to continue the operation of the ELA. Scientific research and monitoring are at the foundation of sound environmental management. Without objective and comprehensive research to inform decision making, the government is blind to the likely outcomes of its decisions and thus unable to weigh expected benefits against potential negative outcomes. Similarly, without monitoring, there is no way to effectively track consequences and fully understand the impact of human actions on the environment.

It is difficult to overstate the ELA's contribution to the field of freshwater ecosystem research. It is respected around the world as one of the few (if not only) places where scientists can conduct long-term, freshwater ecosystem-level experiments. As the examples set out above demonstrate, it has influenced decision making throughout Canada and around the world in a myriad of ways.

The ECO agrees with the ministry that the authorization system set out in the regulations strikes an appropriate balance among the need for: environmental oversight and protection; a science-based approach to evaluating research proposals; and minimizing researchers' administrative burdens. The ECO hopes that the new management arrangement for the ELA can serve to revitalize the facility and public interest in the valuable research taking place there. With appropriate government support, the scientific value of the ELA to environmental decision making will continue for decades to come.

For a more detailed review of this decision, please refer to Section 1.2.4 of the Supplement to this Annual Report.

Comments from the MOECC

The ministry appreciates that the ECO recognizes the on-going importance of the research conducted at the ELA. The ministry is also pleased that the ECO is supportive of Ontario's actions to preserve the ELA as a unique freshwater research facility.

We are glad the ECO agrees that the government's regulatory approach strikes the right balance between protecting the environment and enabling research while minimizing administrative burden for researchers.

Although compliance verification isn't detailed within the regulations, continued oversight to ensure the protection of the natural environment has been built into the application, approval/authorization, monitoring and reporting processes.

The ministry will continue to be an active partner in the stewardship of the ELA in addition to maintaining its oversight role to ensure compliance, through the review of reports and documents, monitoring and inspection of the site, as needed.

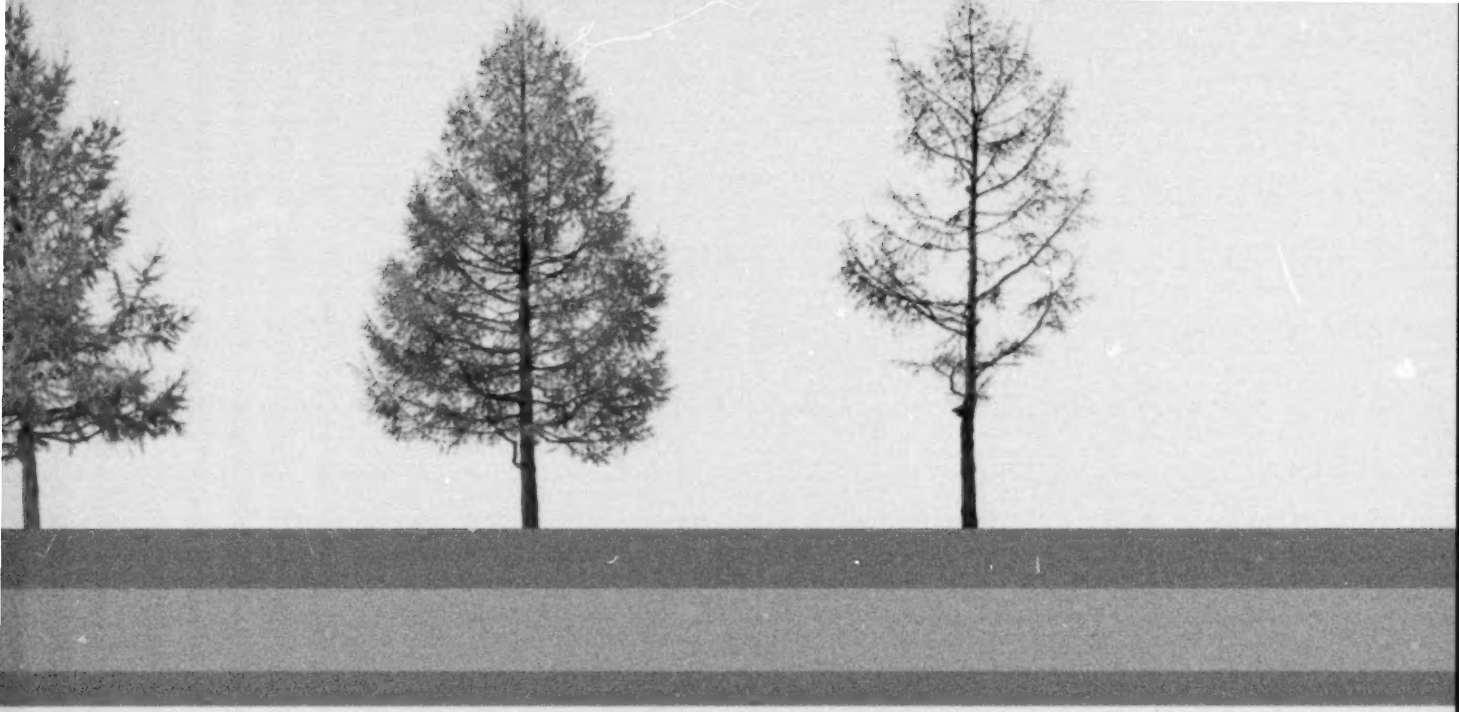
Photo credit - IISD Experimental Lakes Area Inc.

Part 4

Ontario's Commitment to Biodiversity

Conserving Ontario's biodiversity – the variety of life – is fundamentally linked with the province's ability to maintain healthy ecosystems and ensure clean and nourishing air, water and soil. As a result, nearly every ministry in the Ontario government has a role to play in protecting biodiversity across the province, although the Ministry of Natural Resources and Forestry plays a leading role.

Biodiversity is under pressure from a number of different sources. This part of the Annual Report considers several aspects of Ontario's effort to conserve the diversity of species and ecosystems in the province. First, the ECO reviews the implementation of *Biodiversity: It's in Our Nature – Ontario Government Plan to Conserve Biodiversity, 2012-2020* – a plan that imposes obligations on 13 of the 14 ministries prescribed under the *Environmental Bill of Rights, 1993*. We also discuss several issues that deal with ecosystem protection: the newly updated *Ontario Protected Areas Planning Manual*; dark sky preserves; and mechanisms for acquiring conservation lands. We also look at the ecological impacts of human activities on wildlife, including hunting of wild turkeys and black bears, and waterpower projects that affect fish passage.



4.1 Conserving Biodiversity: Who is Protecting What Sustains Us?

The conservation of biological diversity – the variety of life on Earth – is one of the great environmental challenges of our time. Canada, along with 195 other countries, is a party to the United Nations *Convention on Biological Diversity*. In 2010, Canada also committed to the *Aichi Biodiversity Targets* (the "Aichi Targets"), a series of 20 conservation targets under the Convention. Parties are expected to achieve several of these targets by 2015 and the remainder by 2020. Canada's provinces and territories are largely responsible for fulfilling the nation's obligations under the Convention.

The Ontario Government Plan to Conserve Biodiversity

In December 2012, the Ontario government released *Biodiversity: It's in Our Nature – Ontario Government Plan to Conserve Biodiversity, 2012-2020* (the "Plan") (see Part 4.1 of the ECO's 2012/2013 Annual Report). The Plan sets out the roles of 16 government ministries in conserving Ontario's biodiversity. It also commits these ministries to 24 broad actions and 115 specific supporting activities under 4 themes: engaging people; reducing threats; enhancing resilience; and improving knowledge. Lead and supporting ministries are specified for each activity.

In the ECO's 2012/2013 Annual Report, we expressed concern about the absence of a co-ordinated approach to monitoring the implementation of the Plan, and the ECO committed to requesting regular reports from ministries to account for their priorities and achievements under the Plan. In September 2014, the ECO asked all ministries for a report on their progress in addressing their responsibilities and requested that the ministries provide copies of their own implementation plans. Our review of ministry responses is provided below; for further details, refer to Section 4.4 of the Supplement to this Annual Report.

No Accountability for Plan Implementation

No Implementation Plans

None of the ministries contacted provided an implementation plan for meeting their responsibilities. Instead, most ministries provided a generic response explaining the purpose of the Plan and implying that the Plan itself was sufficient to guide implementation of required actions. A number of ministries also stated that "through government priority setting, ministries will establish timelines and deliverables for actions and activities," or they simply said that they would incorporate aspects of the Plan into annual work processes. No further information was provided respecting what these "timelines and deliverables" might be or whether they would ever be communicated to the public.

Failure to Acknowledge Government-wide and Supporting Responsibilities

While ministries reported progress on a number of activities for which they were assigned as the sole "lead," many of the Plan actions that are the joint responsibility of all or multiple ministries have not been addressed. Moreover, most ministries appear to be neglecting their obligations to implement activities where they have been identified as a "supporting" ministry.

For example, the ECO requested that the Ministry of the Environment and Climate Change (MOECC) provide details on its efforts to implement a number of specific actions under the Plan. For seven of these activities, including two for which the MOECC is designated as one of the "lead" ministries, the ministry simply responded that these fall under the mandate of the Ministry of Natural Resources and Forestry (MNRF). This includes a government-wide commitment to "integrate site- and landscape-level biodiversity conservation into existing legislation and policy as opportunities arise." This is something the MNRF cannot do on the MOECC's behalf (for example, by amending the *Environmental Assessment Act* to explicitly address biodiversity in the environmental assessment process).

Likewise, the Ministry of Finance is tasked with supporting 14 activities and co-leading 4 ministry-wide activities. Yet its response was a brief statement saying that the ministry would support the MNRF as the lead agency in three activities (i.e., investigating economic instruments, improving tools for valuing biodiversity, and assessing opportunities to develop a biodiversity conservation market). The Ministry of Finance did not provide any further details on how it intended to "support" the MNRF.

Based on the responses we have received, some ministries may be attempting to shift responsibility for their obligations under the Plan to the MNRF. Other ministries, such as the Ministry of Economic Development, Employment and Infrastructure and the Ministry of Northern Development and Mines, have told us that they do not have an explicit mandate to conserve biodiversity or to regulate activities that directly impact biodiversity. Again, they may be attempting to distance themselves from responsibility for implementing the Plan. These responses contradict the spirit and purpose of the Plan, which envisioned "an important and unprecedented statement of partnership and commitment across 16 ministries to work together to conserve Ontario's biodiversity."

Progress Relates to Government's Core Environmental Priorities

The majority of accomplishments reported by the ministries fall within the Plan's "reduce threats" theme. These generally relate to other program areas that are existing priorities for the Ontario government, namely addressing invasive species, mitigating climate change and reducing pollution. For example, several ministries highlighted actions such as: introducing legislation to address the control of invasive species; eliminating the use of coal in electricity generation; and proposing to reduce the use of neonicotinoid pesticides.

Little On-the-Ground Conservation Action

Despite the progress being made in some program areas, ministries reported little direct conservation action, particularly for activities under the Plan's "enhance resilience" theme. Real progress towards Ontario's biodiversity goals requires strong actions focused on on-the-ground biodiversity conservation that will achieve direct results.

Conservation efforts must target multiple biological and geographic scales, addressing biological diversity at the landscape, ecosystem, species and genetic levels (see Figure 4.1.1). This is necessary in order to successfully protect and restore not just individual species, but also their habitats, the patterns and connectivity of these habitats, and key ecological processes, like water, wildfire and nutrient cycles. Unfortunately, conservation efforts are currently inadequate at each of these levels, as discussed below.

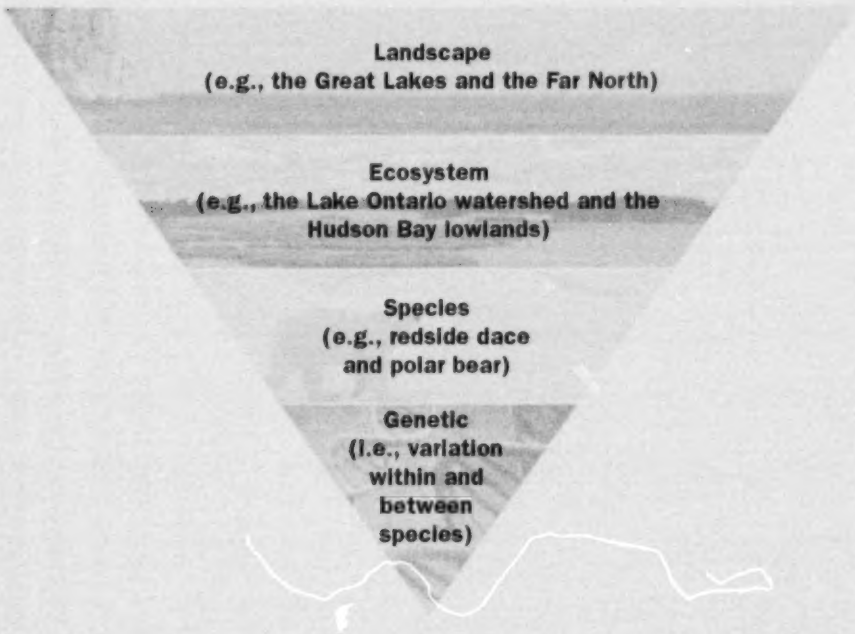

Landscape
(e.g., the Great Lakes and the Far North)
Ecosystem
(e.g., the Lake Ontario watershed and the Hudson Bay lowlands)
Species
(e.g., redside dace and polar bear)
Genetic
(i.e., variation within and between species)

Figure 4.1.1. Biological and geographic scales of biodiversity.

Landscape-level Conservation

Conservation efforts directed at the broader landscape level are important to enable migration and to protect species that are threatened by habitat fragmentation. Protecting natural systems at the landscape level can also support broad-scale ecological patterns and processes. Actions 15 and 16 of the Plan direct ministries to integrate biodiversity into land use and resource management planning, and to promote landscape-level conservation planning.

Provincial land use planning systems (e.g., established under the *Planning Act*, the *Public Lands Act*, the *Far North Act, 2010*, etc.) can be used to conserve biodiversity at the landscape level. They dictate what types of development are appropriate for different areas, and define the areas and natural features that should be protected from development.

As noted by the Ministry of Municipal Affairs and Housing (MMAH) in its response, the newly revised *Provincial Policy Statement, 2014* (PPS) contains several changes that relate to biodiversity, as well as a new requirement for municipalities to identify natural heritage systems in southern Ontario. Despite this new language, as discussed in Part 5.2 of the ECO's 2013/2014 Annual Report, "overall, the PPS is wholly inadequate to safeguard natural heritage against the irreparable damage and loss of biodiversity that inevitably accompany development."

The MMAH also stated that its 2015 review of the regional land use plans for southern Ontario (including the *Growth Plan for the Greater Golden Horseshoe*, the *Greenbelt Plan*, the *Oak Ridges Moraine Conservation Plan* and the *Niagara Escarpment Plan*) "will provide additional opportunities to integrate biodiversity conservation into provincial policy." However, the ministry did not indicate how biodiversity would be considered in its review of those plans.

In its response to the ECO, the MNRF referred to *Taking a Broader Landscape Approach – A Policy Framework for Modernizing Ontario's Approach to Natural Resource Management* as part of its efforts to "integrate site- and landscape-level biodiversity conservation into existing legislation and policy." Applying a landscape approach to natural resources management can have significant benefits for biodiversity, but in the ECO's review of this policy in our 2013/2014 Annual Report (Part 3.1), we stated that "at best, MNR[F]'s Broader Landscape Approach is a meek attempt to re-focus the ministry; at worst, it is a vague and non-committal document that will be used as justification to marginalize the much-needed conservation work that underlies the ministry's core function." It remains to be seen whether the MNRF will implement its new landscape approach in a manner that will tangibly benefit biodiversity.

Ecosystem Conservation

The Plan does not specifically include conserving biodiversity at the ecosystem level as one of its key actions, though it does include several activities that relate to ecosystem and community conservation under Action 14 – expanding the system of protected areas and conservation lands. Action 21 of the Plan also directs ministries to develop and implement tools to maintain and enhance habitats and ecosystem services.

The Ontario government has made an effort to create new protected areas and expand existing areas. For example, in September 2014, the MNRF announced the creation of five new provincial parks and expansion of three others. However, Aichi Target 11 commits parties to increase protected areas to at least 17 per cent of terrestrial and inland water areas by 2020. Currently, regulated protected areas comprise only 10.2 per cent of the province, and the Ontario government clearly needs to protect more land, more quickly, in order to meet Aichi Target 11.

One of the tasks the MNRF is responsible for under the Plan is to review Ontario's wetland conservation policy framework. Wetland conservation can enhance both ecosystem services and habitat. However, neither the MNRF, nor the two supporting ministries for this activity (the MMAH and the MOECC) reported any progress on this review; they did note, however, that it was included as a priority in the MNRF's 2014 mandate letter from the Premier.

Conservation of Species Diversity

Action 20 of the Plan addresses species diversity, which is often the primary focus of efforts to conserve biodiversity. To carry out this action, the MNRF commits to "implement the *Endangered Species Act, 2007* while considering ecosystem and multi-species-based plans and stewardship initiatives, where feasible." The Ministry of Agriculture, Food and Rural Affairs, the MOECC, the Ministry of Northern Development and Mines, and the

Ministry of Transportation are listed as supporting ministries for this activity. In their responses, several ministries highlighted their specific efforts to comply with the *Endangered Species Act, 2007* (*ESA*) and to undertake related activities to benefit species at risk.

However, the individual efforts reported by ministries are tangential to the core protections that the *ESA* is supposed to provide. The ECO has repeatedly warned that the MNRF is failing to implement the *ESA* in a manner that serves to adequately protect and recover species at risk. In 2013, the ECO issued a Special Report titled *Laying Siege to the Last Line of Defence: A Review of Ontario's Weakened Protections for Species at Risk*, which concluded that "the implementation of this legislation has failed miserably." Part 5 of this Annual Report discusses continuing problems with the implementation of the Act, in the context of recent decisions made by the MNRF respecting government response statements, permitting, and habitat management.

Conservation of Genetic Diversity

Genetic variation is the foundation of biodiversity; it is critical to a species' reproductive success, resistance to disease and adaptation to environmental change. Accordingly, one of the Plan's key actions is to "promote consideration of genetic diversity in policy development and decision making."

The MNRF is responsible for leading two activities: developing a genetic resource management strategy for wild species; and enhancing partnerships with emerging centres of excellence in the conservation of genetic diversity. The Ministry of Agriculture, Food and Rural Affairs is responsible for the other activity under this action: continuing to work with the federal government and other partners on issues related to crop and livestock genetic diversity. Neither of these ministries, however, reported progress on these responsibilities.

No Monitoring Program

Collecting baseline information and then ensuring ongoing monitoring for change are essential components of an effective plan to conserve biodiversity. To this end, the Plan commits the MNRF (lead ministry) and the MOECC (supporting ministry) to developing "an integrated, broad-scale monitoring program for all aspects of Ontario's biodiversity." In response to the ECO's request for an update on what the ministry has done in pursuit of this activity, the MNRF stated only that "this activity will require consideration as MNRF continues with its modernization efforts." The MOECC simply said that this activity falls under the MNRF's mandate.

ECO COMMENT

Biodiversity: It's in Our Nature is the Ontario government's plan for halting the loss of biodiversity in the province. There are now less than five years remaining to implement the Plan and achieve the outstanding Aichi Target targets by 2020; however, the Plan's most important actions have yet to be initiated. It appears that the Plan has done little to spur ministries to take effective action to conserve biodiversity and help meet Canada's international commitments. If all government ministries do not fully commit to the goals of the Plan and fulfill their responsibilities, the Plan itself may prove to be little more than a futile exercise in greenwashing.

One of the central challenges in planning to conserve biodiversity is that biodiversity is an inherently broad concept, effectively synonymous with life on Earth. Almost any action that benefits the environment will also benefit biodiversity to some degree. But there is a distinction between conservation activities that substantially benefit biodiversity and those that provide mere incidental benefits.

By necessity, the Plan's activities are diverse. For example, ministries reported on several significant accomplishments, such as introducing invasive species legislation and increasing protected areas. They also reported on a number of more peripheral programs, such as ensuring that farm plastics are recycled. It is unlikely that the government's focus on peripheral program areas will be sufficient to prevent the loss of biodiversity in Ontario.

On-the-ground conservation action for species and their habitats continues to receive insufficient attention and resources, despite the fact that such action is crucial to safeguarding biodiversity in Ontario. With the 2020

deadline approaching, now is the time to actually do something. The Ontario government must undertake high-impact activities, such as:

- expand Ontario's protected areas system to meet the 17 per cent conservation target;
- require protection of natural heritage systems and corridors;
- provide substantial resources for ecological restoration;
- develop strategies to preserve genetic diversity; and
- undertake broad-scale biodiversity monitoring.

These are complex activities that will require expertise, commitment and adequate financial support; however, the long-term benefits of acting now to avoid the irreversible loss of species in the future far outweigh the short-term costs.

The development of the Plan was supposed to be a government priority setting exercise, but based on the ministry responses we have received, it was not: the lack of work-planning and transparency demonstrated by ministries is troubling. More than two years into the Plan, ministries across the board have failed to provide implementation plans or establish "timelines and deliverables." Figuring out *who* is taking *what* actions to conserve biodiversity should not be a guessing game for the public.

Ministry responses also revealed that the root problem the Plan was meant to address remains unresolved: all ministries, not just the MNRF, must play a role in conserving biodiversity. Achieving the Plan's goals (and the Aichi Targets) by 2020 will not happen if the ministries that are responsible for taking action continue to point fingers at one another while doing little or nothing themselves. The Plan, itself, is not overly ambitious, and there is no justification for the apparent reluctance by each ministry to step up and do its assigned part. Given the urgency of biodiversity loss in Ontario, this failure to act brings the government's commitment to this issue into serious question. Halting the loss of biodiversity in Ontario will undoubtedly be difficult, but it can be done – if the Ontario government is willing to move beyond its business as usual approach.

For a more detailed review of this decision, please refer to Section 4.4 of the Supplement to this Annual Report.

Comments from the MOECC

The ministry continues to work closely with MNRF to identify opportunities to integrate biodiversity conservation into Ontario's policies and legislation.

The new Canada-Ontario Agreement (2014) includes a commitment to complete Biodiversity Conservation Strategies and implementation plans for the Great Lakes (Annex 7). The purpose section of the proposed *Great Lakes Protection Act* includes protecting and restoring the natural habitats and biodiversity of the Great Lakes-St. Lawrence River Basin.

Pollination is recognized in Ontario's biodiversity conservation framework as an important ecosystem service that contributes to human well-being. The decline in pollinators was also discussed as an emerging issue in the State of Biodiversity Report (2010). The ministry recognizes the vital role that pollinators play in promoting a sustainable food supply, maintaining biodiversity, and ecosystem stability as evidenced by a new regulation under the *Pesticides Act* brought in to reduce pollinators' exposure to neonicotinoid treated corn and soybean seeds. The regulation is one part of Ontario's strategy to improve pollinator health. The province is also developing a Pollinator Health Action Plan in consultation with the public and experts to address other stressors that affect pollinators.

The ministry also supports the Ontario Biodiversity Council in reporting on the targets outlined in Ontario's Biodiversity Strategy (2011). In May, 2015 the Ontario Biodiversity Council released the State of Ontario's Biodiversity

Report, including 43 indicators that provide a "state of" assessment to evaluate progress in achieving each of the 15 targets from the Strategy.

Comments from the MMAH

MMAH and MNRF, along with partner Ministries, are currently undertaking a co-ordinated review of the four Plans to consider how well the Plans are working to manage growth and protect valuable resources. This includes considering input from public/stakeholder consultations and how the Plans can better support Ontario's biodiversity strategy and support efforts to reduce climate change.

Comments from the MNRF

Biodiversity: It's in Our Nature, Ontario Government Plan to Conserve Biodiversity 2012-2020 (BIION) is the Ontario government's implementation plan for advancing biodiversity conservation. Using Ontario's Biodiversity Strategy, 2011 as a guiding framework, this plan outlines key actions and supporting activities the government will take by 2020 to conserve the province's biodiversity.

The term of BIION, 2012-2020, is consistent with Ontario's Biodiversity Strategy, 2011, the 2020 Biodiversity Goals and Targets for Canada, the Strategic Plan for Biodiversity 2011-2020 and the Aichi Targets. Through government priority setting, ministries will establish timelines and deliverables for actions and activities identified in the plan. Now three years into an eight-year term, BIION actions and activities are being advanced. Examples include the Ontario Children's Outdoor Charter, the passing of the Local Food Act and the re-introduction of the Ontario Invasive Species Act.

Mandate letters provided by the Premier to provincial Ministers in September 2014 affirm commitments to biodiversity. For MNRF, the mandate letter supports Ontario's Biodiversity Strategy and directs MNRF to work with other ministers and partners to advance measures aimed at further strengthening and protecting Ontario's biodiversity. This includes addressing invasive species, protecting wetlands and implementing the Endangered Species Act.

MNRF's support to the Ontario Biodiversity Council and its activities contributes to the biodiversity mandate. In May 2015, Council held the first Ontario Biodiversity Summit and released the State of Ontario's Biodiversity 2015 report (SOBR 2015). These activities help mainstream biodiversity, a goal of the OBS and BIION, and advance actions in BIION and the OBS.

Comments from the MNDM

Biodiversity: It's in Our Nature, Ontario Government Plan to Conserve Biodiversity 2012-2020 (BIION) is the Ontario government's implementation plan for advancing biodiversity conservation. Using Ontario's Biodiversity Strategy, 2011 as a guiding framework, this plan outlines key actions and supporting activities that the government will take by 2020 to conserve the province's biodiversity.

MNDM continues to support biodiversity conservation as it fulfills its mandate and carries out its regional responsibilities for Northern Ontario. For example, through the Ring of Fire Secretariat, MNDM works with all levels of government, and with industry, communities and Aboriginal peoples to encourage responsible and sustainable economic development in the North, while upholding Ontario's commitment to protecting the environment. Although MNDM does not have a specific mandate to conserve biodiversity, it supports biodiversity and environmental sustainability through a number of key initiatives.

The Abandoned Mines Rehabilitation Program (AMRP) prioritizes sites for rehabilitation so that abandoned mine sites posing the greatest risk to the environment and public health and safety are rehabilitated first. Mine Closure Planning, a province- wide initiative, ensures that proponents consider, plan and design closure requirements before operations start up. MNDM's Class Environmental Assessment addresses biodiversity by identifying and mitigating potential negative environmental effects of its discretionary undertakings under the Mining Act. MNDM continues to support Ontario's Plan to Conserve Biodiversity.

Comments from the MTO

The Ministry of Transportation (MTO) continues to support the Ontario Biodiversity Strategy, and strives to balance infrastructure development with natural protection. *Biodiversity: It's in Our Nature* (BIION) is regarded by Ministries as our government's implementation plan to conserve the province's biodiversity. MTO integrates the actions and activities prescribed in BIION into annual work planning and mandated priorities.

MTO's efforts, noted in the ECO's report to address compliance with the Endangered Species Act, 2007 (ESA), allow MTO to undertake activities that achieve a high standard of road safety, while proceeding in accordance with ESA. MTO's actions that support habitat rehabilitation and species protection reflect the Ministry's commitment to the goals of BIION and the conservation of Ontario's biodiversity.

MTO is proud of its work to ensure the protection of species at risk and biodiversity. The Ministry has developed transportation specific best management practices for the protection of species at risk during maintenance activities and has undertaken protection measures to reduce wildlife-vehicle collisions. MTO also implements solutions on a project-specific basis, such as the ecosystem-based restoration approach used for the Rt. Hon. Herb Gray Parkway, and new mitigation installations such as Highway 69 fencing and wildlife crossing structures.

No comments provided by the OMAFRA, the MEDEI, the EDU, the ENG, the MOHLTC, the MGCS or the MTCS.

4.2 Planning Protected Areas for Ecological Integrity

Protected areas, which include both provincial parks and conservation reserves, are among the most useful tools for conserving biological diversity. They can safeguard biodiversity "hotspots" and act as a refuge from development pressures on wildlife, including rare and at-risk plants and animals. They also can function as natural corridors to facilitate the movement of species, and contribute to the protection of vital ecosystem services, like producing clean air and water. Additionally, our provincial parks and conservation reserves provide people with an important place to connect with nature and offer numerous recreational opportunities.

The Ministry of Natural Resources and Forestry (MNRF) is responsible for managing the province's system of protected areas. The 637 regulated provincial parks and conservation reserves are governed by the *Provincial Parks and Conservation Reserves Act, 2006* (*PPCRA*), which sets out two principles to guide all aspects of the management and planning of protected areas: (1) maintenance of ecological integrity shall be the first priority and the restoration of ecological integrity shall be considered; and (2) opportunities for consultation shall be provided.

The challenges are daunting. The ministry's *State of Ontario's Protected Areas Report* (2011) identified a number of ongoing pressures that threaten the ecological integrity of Ontario's protected areas, including:

- the effects of climate change;
- air and water pollution, including acid rain;
- human activities that disrupt natural processes, including the suppression of wildfires and disruption of natural hydrological functions by dams and water crossings;
- land use changes in surrounding areas (e.g., agricultural or urban development) that can isolate protected areas and reduce connectivity;
- hyper-abundant species and invasive species, such as zebra mussels and the invasive common reed (*Phragmites australis*); and
- recreational activities and development within protected areas.

Management of Ontario's Protected Areas

The *PPCRA* requires every protected area to be covered by ministry-prepared "management direction"; the MNRF must develop either a management statement or a management plan depending on the complexity of the issues being addressed. Management direction describes how a protected area will contribute to the achievement of the *PPCRA*'s objectives and identifies site-specific policies to guide the management of an area over a 20-year time period. Generally, management direction: establishes the purpose of, and vision for, a protected area; describes objectives (e.g., protection, recreation or scientific objectives); and defines management policies, including zoning, permitted activities and management actions. The ministry may also use secondary plans to address specific complex or technical issues.

In the ECO's 2012/2013 Annual Report, we reviewed the state of management direction for Ontario's protected areas and found that the vast majority of management plans and statements were outdated and failed to reflect the central mandate of the *PPCRA*: to maintain ecological integrity. Since that time, moderate progress has been made on the issue of outdated management direction. Further, many of the current management plans and statements were approved at a time when the MNRF had different priorities for protected areas; for example, some allow planned development that may be at odds with the law's current direction or allow activities that run counter to maintaining ecological integrity.

The *PPCRA* requires the ministry to prepare a planning manual to guide the development of management direction. In March 2014, the ministry posted decision notices on the Environmental Registry (#011-7467 and #011-9717) for a new edition of the *Ontario Protected Areas Planning Manual* ("Planning Manual") and four supplementary guidelines.

The Planning Manual provides policy direction and defines the minimum requirements for protected areas management planning. The supplementary guidelines provide more detailed guidance for developing, examining and modifying management direction, and for involving Aboriginal communities, the public and stakeholders during the management planning process. One of these supplementary guidelines, the *Guideline to Management Planning for Protected Areas in the Context of Ecological Integrity* ("Planning Guideline"), sets out how the MNRF will apply the principle of ecological integrity to identify management priorities.

Collectively these policies explain how the ministry will prioritize the maintenance of ecological integrity of provincial parks and conservation reserves in its management decisions, as well as how opportunities for restoration will be considered. For further details on the Planning Manual and guidelines, refer to Section 1.3.3 of the Supplement to this Annual Report.

What is Ecological Integrity?

Ecological integrity is a concept that centres on the overall health of an ecosystem, and is informed by a system's natural composition, diversity and processes. According to the *PPCRA*, ecological integrity is "a condition in which biotic and abiotic components of ecosystems and the composition and abundance of native species and

biological communities are characteristic of their natural regions and rates of change and ecosystem processes are unimpeded."

According to the MNRF, "ecosystems have integrity when they have intact native biological components (plants, animals and other organisms), abiotic components (such as geology and water), and processes (such as reproduction and population growth)." The heart of the definition is the "naturalness of a protected area." Ecosystems have integrity when they can be described as whole, intact or unimpaired.

The complexity of natural systems makes managing protected areas for ecological integrity a challenging task; however, there are several key elements in taking an ecological approach to management. First, it is necessary to decide how ecological integrity will be defined and measured for a particular area (e.g., which fundamental processes, species or features need to be intact). Second, because protected areas and their ecological processes are inevitably affected by the activities and conditions beyond their boundaries, they should be managed within the context of the broader landscape. And third, adequate baseline information, ongoing monitoring and adaptive management are needed to be able to address the highest priority issues.

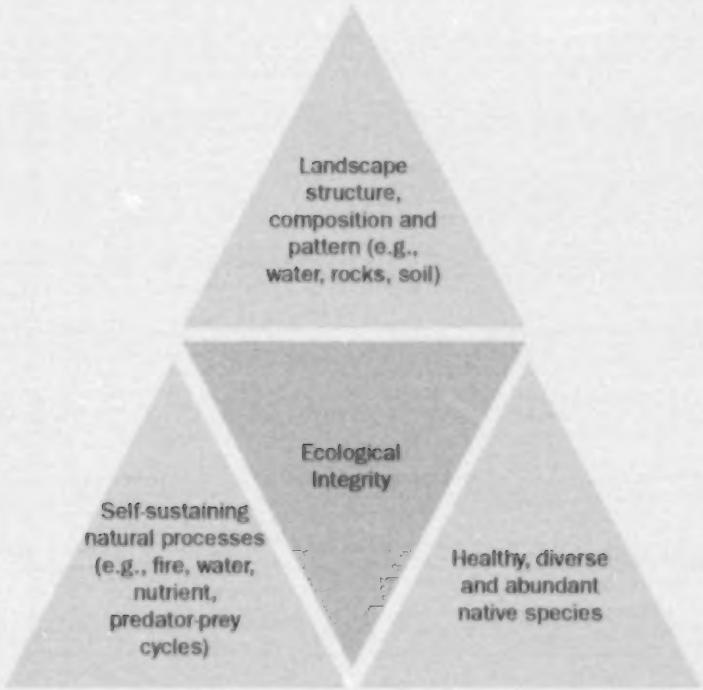

Landscape structure, composition and pattern (e.g., water, rocks, soil)
Ecological Integrity
Self-sustaining natural processes (e.g., fire, water, nutrient, predator-prey cycles)
Healthy, diverse and abundant native species

Figure 4.2.1. Basic components of ecological integrity.

Planning for Ecological Integrity

The MNRF's management planning process is focused on identifying specific "values" (e.g., species, geological features, ecological processes), and then identifying "pressures" (i.e., threats) on those values. The planning process addresses ecological integrity by analyzing the identified values and pressures to determine management priorities and actions to mitigate or eliminate pressures on the values.

Identifying Values

The Planning Guideline recognizes both tangible and intangible values, which generally fall into one of four categories: natural heritage (e.g., rare species, ecological processes); cultural heritage (e.g., Aboriginal cultural heritage values, archaeological values); outdoor recreation – provincial park (i.e., resources supporting ecologically sustainable recreational uses); and traditional outdoor heritage – conservation reserve (i.e., resources supporting ecologically sustainable traditional outdoor heritage uses).

The Planning Guideline also states that the protected area boundary and protected area as a whole can be considered values in the context of the broader landscape. This direction represents modest progress compared to past policy, where ministry staff typically did not consider management actions beyond the regulated boundary of a protected area. A more inclusive ecosystem approach to management is a well-accepted best practice. As noted by the ECO in our 2006/2007 Annual Report, the boundaries of protected areas are artificial constructs that do not reflect natural boundaries and, as such, the MNRF should take a broader view of its management actions for protected areas.

The most important values in the management planning process are called "values of conservation interest." According to the ministry, these values are the primary focus of management and should not be compromised by development or use of any kind. Common types of values of conservation interest include: habitat for species at risk; provincially significant wetlands; and critical landform-vegetation associations. For example, the provincially significant baymouth dune formations and vegetation communities at Sandbanks Provincial Park would likely constitute such a value in a new management plan.

Although recreational activities (e.g., swimming, hunting, fishing) and educational programs (e.g., astronomy programs at Bon Echo Provincial Park and public wolf howls at Algonquin Provincial Park) are not themselves considered values, the resources that facilitate them (e.g., guided trails, interpretive centres, beaches, wildlife) may constitute values. Similarly, although social and economic benefits inform the role of a protected area and uses within that area, these benefits are not considered values.

The canyon floor in Ouimet Canyon Provincial Park is home to arctic, sub-arctic and alpine plants that are usually found 1,000 kilometres north. These plants represent relicts of a post-glacial environment that have been isolated and preserved through the protection of the canyon walls. (Photo credit - Sharon Mollerus)

Identifying Pressures to Values

The Planning Guideline defines pressures as "any natural disturbance or anthropogenic (human) activity or facility (including associated activities) that has an impact on a value, including any ecological process associated with a protected area." These can include: legacy pressures that are no longer occurring but still having an impact; current pressures; and future pressures that are anticipated to occur. For example, there are invasive species in Komoka Provincial Park that are associated with historical agricultural uses, including garlic mustard, which displace native plants and adversely affect the park's ecological integrity.

Analysis of Values and Pressures

Once ministry staff identify values and pressures, they assess them together using a risk analysis approach, which distinguishes those values under pressure from those that are not. The guideline lays out a clear methodology for the risk analysis process to allow planning teams to determine which values are under the greatest threat and are considered priorities for management action. Generally, values of conservation interest are accorded a higher priority than other values (including in circumstances where values conflict), and values under pressure are a higher priority than those that are not. This process may also help determine which topics should be addressed by a secondary plan. For example, the *Quetico Provincial Park Forest Fire Management Plan*, the only fire management plan for any provincial park, describes how the ministry will manage forest fires in the park for the 2009–2019 period (see Section 4.15 of the Supplement to the ECO's 2009/2010 Annual Report).

Identifying Management Actions

The ministry then determines what management actions will address these priorities. Generally, management actions should address the underlying cause of a pressure, "thereby reducing, mitigating or removing negative impacts, protecting values and restoring natural ecological processes." Following further analysis, assessment and consultation, the selected management actions are ultimately incorporated into and inform the policies of the final management direction.

Long Point Provincial Park is located within a UNESCO World Biosphere Reserve, and is one of the largest bird and waterfowl migration and staging areas in North America.

Timelines for Management Direction Review

Although amendments in 2012 to the *PPCRA* extended the review cycle for management direction from 10 years to 20 years, the Planning Manual directs that subsequent examinations should be more frequent. The manual confirms that the initial examination of management direction will occur 20 years after the document is approved. However, successive examinations will then be completed on a 10-year cycle, unless the direction is replaced; a replacement will restart the 20-year review period. Moreover, the MNRF may initiate full or scoped examinations at any time on a discretionary basis.

IMPLICATIONS OF THE DECISION

Management Actions Based on Ecological Integrity

The Planning Guideline provides the necessary internal guidance for ministry staff to ensure that ecological integrity is the first priority in planning protected areas, as mandated by the *PPCRA*. The guideline sets out a defensible risk assessment process and it provides clear decision-making criteria for determining management priorities and actions for protected areas.

4.2.1 Ecological Integrity is for the Birds: The Presqu'ile Provincial Park Management Plan Amendment

Presqu'ile Provincial Park is located on the north shore of Lake Ontario in the Municipality of Brighton. Established in 1922, this protected area includes a remarkable diversity of landforms and habitats including sand dunes, pannes (seasonally wet flats between the dunes), marshes, fields and forests that support at least 11 species at risk. Presqu'ile is the second-most visited provincial park in southeastern Ontario. Visitors can enjoy hiking, swimming, nature appreciation and cycling, among other activities. Waterfowl hunting is also allowed in some parts of the park four days a week between late September and late December.

In 2014, the Ministry of Natural Resources and Forestry (MNRF) completed its first major review and update of Presqu'ile's management plan since the *Provincial Parks and Conservation Reserves Act, 2006* was passed; the decision notice was posted on the Environmental Registry (#012-0486) on November 7, 2014. The Act directs that the maintenance of ecological integrity be the first priority in park management and planning. However, the amended management plan does not contain any information on the current state of, or threats to, the park's ecological integrity. With the exception of the protection and scientific research objectives and very brief statements enabling vegetation management and wildlife habitat rehabilitation and restoration, there is no new content that explains how the MNRF will maintain and restore the ecological integrity of Presqu'ile Provincial Park. This is in contrast to recently approved management plans for Sioux Narrows and Holland Landing Prairie Provincial Parks, which explicitly address ecological integrity when explaining planning and management decisions.

The updated management plan for Presqu'ile provides direction for new development and infrastructure in the park, including roofed overnight accommodations, expansion of the park's camping trailer dumping station, and a new campground office, park store and visitor centre. These enhancements to visitor services could put added pressure on the ecological integrity of the park by attracting a larger number of day-use visitors and campers, but the management plan does not include any discussion of how these projects could impact ecological integrity. In fact, the ministry fails to explain how any of the directions contained in the plan affect ecological integrity in any way.

To ensure that a management plan review is thoroughly executed, the MNRF should allow for a public discussion, based on the latest information, of how all issues will (or will not) be addressed in the years ahead. However, the ministry did not reopen the discussion about waterfowl hunting in its examination of the Presqu'ile management plan, despite strong concerns voiced by many public commenters on this policy decision. Instead the MNRF simply stated that waterfowl hunting was "out of scope for the amendment," and that the plan was

updated "to reflect a 2001 decision which supports waterfowl hunting in the park." While the ministry may decide to allow such an activity to continue, excluding it from a plan review undermines the public's confidence in the management planning process. It is the ministry's responsibility to examine the impacts of all activities in protected areas and articulate why they are (or are not) compatible with ecological integrity. A management plan for a protected area should outline the steps, timing and resources used by the MNRF to achieve the plan's primary objective: the maintenance of ecological integrity.

For a more detailed review of this decision, please refer to Section 1.3.4 of the Supplement to this Annual Report.

The guideline's direction will equip ministry staff to address the most pressing problems and protect the most important ecological features and processes. Values of conservation interest have top priority; this should strengthen the ministry's hand in maintaining ecological integrity.

Moreover, the Planning Guideline excludes activities, programs and social or economic benefits from the definition of value. This means that while these factors will still be allowed to inform the management planning process, they will not determine management choices. This focused definition of value will help to ensure that management planning, at least in principle, will not be unduly influenced by external interests that could potentially conflict with the maintenance and restoration of ecological integrity.

Management Planning Process Gaps

The 2012 *PPCRA* amendments left several gaps in the timelines for management planning projects. Some of these gaps are now filled by the timelines set in the Planning Manual. For example, the ministry's commitment to examine management direction on a 10-year review cycle (subsequent to the first examination) goes beyond the requirements of the amended legislation. Further, protected areas could benefit from the flexibility provided under the Planning Manual to initiate examinations outside of the normal review cycle at the ministry's discretion. The manual and guidelines also reaffirm the 20-year horizon for management direction.

ECO COMMENT

Ecological integrity is at the core of Ontario's protected areas system – it is the diversity and abundance of native species, together with unimpeded natural processes, that make these areas so distinct. The MNRF must safeguard Ontario's protected areas for future generations and ensure that the wildness of these special places is unimpaired. The *PPCRA*'s requirement to prioritize ecological integrity above all else is a significant advance in conserving our provincial parks and conservation reserves for their own sake, free from undue and inappropriate impacts. However, applying this new direction will be a challenge; it will require both resources and a cultural shift within the ministry.

Nearly seven years after the *PPCRA* came into force, the ministry has finally publicly articulated how it will manage for ecological integrity in protected areas. The ECO commends the MNRF for taking this important step. The updated Planning Manual and supplementary guidelines provide the detailed guidance that was lacking in the 2009 Planning Manual and collectively establish a solid foundation for ecosystem-based management. Moreover, these documents appear to envision an open and transparent planning process with ongoing public involvement. The ECO is hopeful that this planning framework will enable the MNRF to protect the ecological communities and processes that are characteristic of Ontario's protected areas.

Now that the necessary groundwork has been completed, this planning framework will have to be implemented throughout the province. The ECO has been urging the MNRF to bring protected areas' management direction up to date for over a decade. This is no small task, and the ministry needs adequate resources to undertake the management direction planning process, particularly for the many protected areas with outdated management plans and statements. It is imperative that there be sufficient internal expertise, such as park planners and ecologists, to put the ministry's policies into practice and, most importantly, safeguard the future of Ontario's

protected areas.

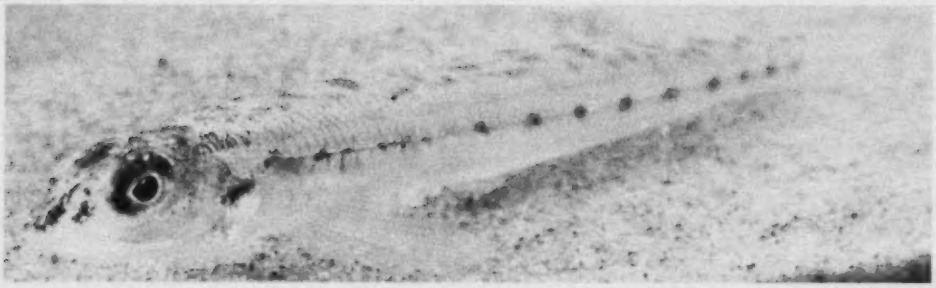
Further, although the *PPCRA* directs the MNRF to maintain and restore ecological integrity, in practice, ecological restoration projects in protected areas have not been a priority for the ministry. Few provincial parks and conservation reserves are pristine, intact ecosystems – many areas have legacy impacts from prior land uses, in addition to ongoing degradation of ecosystem functions from various internal and external pressures. As such, the ECO encourages the government to establish a dedicated internal fund for ecological restoration projects in Ontario's protected areas. Protected area managers should not exclusively focus on mitigating impacts or managing for "sustainability" in a particular park; rather, they should aim to improve ecological integrity and seek new opportunities for net gains in biodiversity.

The new Planning Manual and guidelines describe how the MNRF will manage for ecological integrity in individual protected areas, but are not intended to provide strategic direction for where and when the ministry will direct its efforts and resources within the protected areas system as a whole. The ECO urges the MNRF to develop a strategic plan for protecting and restoring ecological integrity throughout the entire protected areas system. Such a strategy could: set overarching priorities for the maintenance and restoration of ecological integrity; establish achievable operational objectives; and provide a plan for reviewing management direction for specific protected areas, replacing the ministry's current *ad hoc* review process. Without strategic direction for protected areas management planning, the ecological integrity of many of Ontario's provincial parks and conservation reserves remains vulnerable to the multitude of pressures that exist throughout the province.

For a more detailed review of this decision, please refer to Section 1.3.3 of the Supplement to this Annual Report.

Prescribed burns in Rondeau Provincial Park promote oak savanna – a rare plant community. (Photo credit : Sandy Dobbyn)

RECOMMENDATION 5
The ECO recommends that the MNRF establish a dedicated annual fund and strategic priorities for ecological restoration in protected areas.



Recently, while studying the endangered pugnose shiner in Sandbanks Provincial Park, MNRF staff discovered a population of eastern sand darter – another endangered fish that had never been documented in the Lake Ontario Basin before. (Photo credit – Alan Dextrase)

Comments from the MNRF

Ontario's system of protected areas includes over 640 provincial parks, conservation reserves and dedicated protected areas in the Far North covering an area of over 10 million hectares, or about ten per cent of Ontario.

MNRF is continuing to advance the maintenance and restoration of ecological integrity in provincial parks and conservation reserves through products such as Ontario's Protected Areas Planning Manual and Guidelines and staff development, such as offering ecological integrity training at the Ontario Parks Leadership Foundations Course.

A science team with a focus on ecological integrity has also been established to provide strategic advice, identify new and emerging threats and opportunities, and highlight best management practices for maintaining and improving ecological integrity in Ontario's provincial parks. Communications efforts such as new website content, blogs and other social media have also helped to further the understanding of ecological integrity amongst park users and stakeholders.

MNRF acknowledges there are pressures on ecological integrity at Presqu'ile Provincial Park. The 2014 management plan amendment considered ecological integrity as reflected in the following changes to the plan:

- Protection objective reworded to include reference to managing the park to ensure ecological integrity is maintained
- New scientific research objective acknowledges that results of scientific research and monitoring can be used to help maintain and restore the ecological integrity of the park
- Zoning was refined; some existing development zones were rezoned to a more protective zoning type
- Enabled vegetation management, including control of invasive species
- Enabled wildlife habitat enhancement, rehabilitation and restoration.

4.3 When Darkness Doesn't Fall: The Ecological Importance of Nighttime Darkness

Outdoor nights are often flooded with light – emitted from homes and offices, towers, streetlights, vehicles and a myriad other sources. As levels of nighttime illumination continue to grow, the nightscape is gradually being obscured. Stargazers must go to increasingly remote settings to view even a portion of the sky that isn't washed out by this "astronomical light pollution."

Artificial light at night does more than just annoy amateur astronomers; it has a powerful effect on the biological world. It can affect animals' physiologies, foraging behaviours and predator-prey relationships, as well as reproduction, communication and navigation. If you have ever watched insects swarming around a street lamp in the evening (making them easy prey for bats and other predators), then you have witnessed one effect of "ecological light pollution" – artificial light that disrupts the natural patterns of light and dark in terrestrial and aquatic ecosystems. Artificial light in the night is believed to have profound and long-term ecological effects, potentially altering the structure and function of ecosystems themselves.

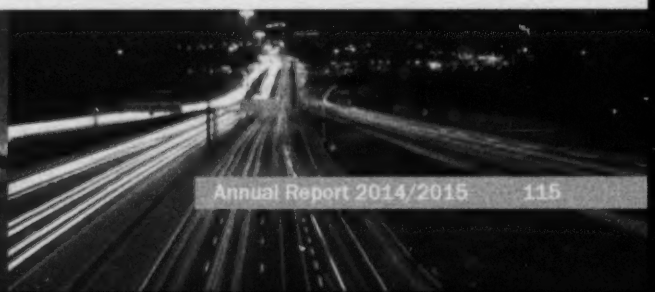
While there has long been evidence that artificial night lighting affects individual organisms, the formal study of the biological and ecological need for periods of natural darkness, known as "scotobiology," is still relatively new. And until fairly recently, the implications of ecological light pollution for conservation have been largely overlooked.

The Disappearing Night: An Ecological Problem

Unlike astronomical light pollution, which refers to light that is directed or reflected toward the sky, ecological light pollution also includes outdoor lighting that is directed downwards or shielded from the sky (in some cases deliberately to reduce astronomical light pollution). Sources can include "sky glow" (see box "Forms of Light Pollution"), as well as lights from buildings and other structures, street lamps, vehicles, boats, lighthouses and even offshore oil platforms and underwater lighting.

There are many examples that demonstrate the potential biological and ecological effects of artificial night lighting. While not all are specific to Ontario, they raise concerns about the impacts that artificial night lighting may be having on individual species and ecosystems in this province.

Migratory birds can become disoriented by nighttime city lights, resulting in fatal collisions with tall, brightly lit buildings. This is a serious problem that results in the deaths of millions of birds in Canada every year (see Part 2.5 of this Annual Report for more discussion on bird collisions with buildings). Under natural conditions, sea turtle hatchlings navigate toward the ocean, which is brighter than the landward horizon. However, artificial light from hotels, homes and other structures along the coastline can cause hatchlings to lose their way to the sea and perish, victims of exhaustion, predation or road collisions. Moths and many other insect species are attracted to artificial light, resulting in high mortality from predation, contact with hot light sources or exhaustion from endlessly orbiting the light.



FORMS OF LIGHT POLLUTION

Glare – The effect of light that shines horizontally (i.e., in the visual field).
Light trespass – Artificial light that spills beyond the area intended to be lit.
Over-illumination – Illumination in excess of what is needed or at times when it is not needed.
Sky glow – Distant light from populated areas reflecting off of particles of water vapour, dust or smog in the atmosphere.

Among the more subtle impacts, changes in nocturnal lighting have been found to reduce the success of nocturnal tree frogs and beach mice in finding food. While artificial lighting may actually help bats hunt for insects around streetlights, it can also interfere with some bat species' commuting behaviour (e.g., between roosts and foraging areas) and their ability to navigate. In freshwater environments, artificial nighttime lighting may alter the spatial distribution, daily movement and overwintering success of some aquatic organisms, including fish. Artificial lighting can also influence the development, flowering and dormancy of some plants, and prevent some tree species from adjusting to seasonal variations.

Nighttime lighting can also affect reproductive behaviours. Studies have found that street lights influence egg-laying behaviour in some songbirds, as well as mating behaviour in some songbird and frog species. Artificial light is also believed to interfere with the bioluminescent flashes that some insects, such as glow worms and fireflies, produce to communicate and attract mates.

These effects are not insignificant. Changing the timing of egg laying in birds can cause hatchlings to go hungry if their natural food sources are not yet available. An organism that alters its foraging behaviour in response to artificial light may affect others competing for the same resources. Such seemingly small behavioural changes could cumulatively affect the health of an entire ecosystem. For example, artificial lighting could result in greater predation of zooplankton grazing at the water's brightly lit surface; in turn, reduced numbers of zooplankton could lead to increased algal growth and a consequent decline in water quality. The influence of artificial night lighting may even alter entire community structures. One study found that the presence of street lighting changed the composition of ground-dwelling invertebrate communities in the area.

LIGHT POLLUTION IS BAD FOR PEOPLE TOO

Like other organisms, humans have internal clocks that are based on natural cycles of light and darkness. Exposure to light at night can disrupt human circadian rhythms (the 24-hour day/night cycle), interfering with numerous processes, including hormone production, immune system response and cell regulation. Excessive exposure to artificial light at night has been linked to depression, sleep disorders, cardiovascular disease and even increased risk of cancer in humans.

Preserving the Darkness

Efforts to decrease the use of artificial lighting at night have been motivated primarily by a desire to maintain favourable conditions for stargazing or to reduce energy consumption. For example, to combat the eroding quality of night sky viewing, the Royal Astronomical Society of Canada (RASC) established a Light Pollution Abatement program in 1991 that promotes and gives advice on better lighting practices within urban and rural areas. In 2003, the City of Toronto adopted a "Lights Out Policy" as part of its larger Energy Management Program for city facilities. Some Ontario municipalities have adopted light pollution by-laws aimed at protecting the night sky and reducing wasteful and inefficient outdoor lighting.

Awareness of the ecological consequences of artificial lighting is growing and, with it, efforts to reduce ecological impacts. Although energy conservation was the primary motivation for Toronto's Lights Out Policy, one of its goals was also to reduce the number of bird deaths in highly lit downtown areas. In 2005, Toronto also launched

a public awareness campaign, "Lights Out Toronto!," to promote ways that individuals, businesses, property owners and others can help reduce migratory bird deaths. And in 2007 Toronto developed *Bird-Friendly Development Guidelines*, which include recommendations to make lighting for new and existing buildings less dangerous to migratory birds. The *Toronto Green Standard* now requires certain new building developments to shield exterior light fixtures, and offers reductions in development charges for building owners that follow certain recommendations, such as turning off rooftop lighting overnight during migratory bird seasons.

Other North American cities have initiated similar programs to save migratory birds by turning out the lights. In 2009, the International Union for Conservation of Nature (IUCN) established a Dark Skies Advisory Group in response to the growing body of scientific literature on the ecological impacts of light pollution.

Dark Sky Areas

One of the most notable efforts to reduce light pollution has been the creation of "dark sky areas" – areas in which outdoor lighting is restricted to protect the natural darkness of the night sky and the environment. In the last two decades, astronomical and environmental communities have joined forces – recognizing that their interests in preserving nighttime darkness for stargazing and for ecological purposes are aligned – to advocate for the establishment of such dark sky areas. Organizations have been working around the world to promote the preservation of dark skies, but Canada has been at the forefront of the dark sky movement.

Canada's first dark sky area (and the first in the world to be recognized by an independent authority) was Ontario's Torrance Barrens Conservation Reserve, near Gravenhurst. The provincial government designated the area a dark sky reserve in 1999, primarily to maintain dark skies for astronomy, with trails and a viewing area for astronomy buffs. In addition, the provincial government's management direction for Torrance Barrens commits to prohibiting unnecessary, undirected light pollution in recognition of "the natural, aesthetic and biological values provided by a pristine night sky."

Following designation of the Torrance Barrens as a dark sky reserve, the concept of preserving the night sky in protected areas – not just focusing on light pollution in urban settings – took root. In 2005, the RASC established a formal program to designate eligible areas as "dark sky preserves." The goal of the RASC's Dark-Sky Preserve Program is "to promote the reduction in light pollution, demonstrate nighttime lighting practices, improve the nocturnal environment of wildlife, protect and expand dark observing sites for astronomy, and provide accessible locations for the general public to experience the naturally dark night sky."

Today, there are 17 RASC-designated dark sky preserves in Canada, 6 of which are located in Ontario (see box "Ontario's Dark Sky Preserves"). Eight of Canada's dark sky preserves are in national parks – in fact, Wood Buffalo National Park, which comprises 44,807 square kilometres and spans the Northwest Territories/Alberta border, is the largest dark sky preserve in the world.

ONTARIO'S DARK SKY PRESERVES

Torrance Barrens Conservation Reserve (1999)
Point Pelee National Park (2006)
Gordon's Park, Manitoulin Island (2008)
Bruce Peninsula National Park and Fathom Five National Marine Park (2009)
Bluewater Outdoor Education Centre, Wiarton (2012)
North Frontenac Township (2013)

Photo credit - S.Schanf - FLAP Canada

The RASC's guidelines for outdoor lighting in dark sky preserves provide general guidance, including:

- eliminating any unnecessary outdoor lighting;
- using only the minimum level of lighting required for safety and navigation;
- keeping the area of illumination as small as practical by using full cut-off (shielded) light fixtures and/or structures or barriers to confine the area of illumination;
- keeping the duration of illumination as short as practical;
- turning off all light sources within two hours of sunset to provide for a "dark time"; and
- ensuring any indoor lighting is not visible from the outside at night.

To minimize disruption to plants and wildlife, the guidelines also specifically recommend that:

- pathway lighting be restricted to paths near buildings, parking lots and campgrounds;
- light fixtures not be located within ten metres of a shoreline, and overhead lights that shine into water be prohibited;
- illumination height and colour be adjusted to minimize impact of lighting on the ecosystem;
- owners of private properties within dark sky preserves be informed of the impact of artificial lighting on wildlife and encouraged to minimize the use of artificial lighting on their properties; and
- in developed properties within park facilities, lighting products that produce excessive glare or light trespass, or emit short wavelength light that affects wildlife, should not be permitted.

The RASC has also created a Nocturnal Preserve Program which focuses on improving the nighttime environment for wildlife, rather than astronomy. The guidelines for nocturnal preserves are more stringent in terms of reducing outdoor lighting than the guidelines for dark sky preserves (e.g., they aim to eliminate all artificial lighting within the core of the preserve), as the nocturnal preserve designation is intended to apply in areas that do not have an astronomy outreach program. The RASC designated Canada's first nocturnal preserves (the Ann & Sandy Cross Conservation Area in Alberta, and the Old Man on His Back Prairie and Heritage Conservation Area in Saskatchewan) in July 2015.

Considering the Need for Darkness

Whether through the establishment of dark sky areas or other means, there is agreement among many conservationists that greater consideration of the impacts of artificial light at night needs to be incorporated into conservation research and planning. Experts on the ecological impacts of artificial night lighting have warned that "unless we consider protection of the night, our best-laid conservation plans will be inadequate."

To some extent, this is happening already. Parks Canada has adopted best practice guidelines for outdoor lighting in parks, and includes direction to reduce light pollution in its management plans for communities in some national parks. The federal recovery strategy for woodland caribou identifies "light disturbance" as a threat: one that can affect caribous' behavioural and physiological responses and, in cases of sustained or repeated

disturbance, cause caribou to avoid areas, thereby reducing their usable habitat. Ontario has incorporated dark sky protection into management direction for a small number of conservation reserves. However, such consideration of the impacts of night lighting in conservation planning has been patchy at best.

ECO COMMENT

Artificial light at night serves some important functions; it allows for safer navigation after dark and extends the hours of the day that people can work and play. Even dark sky preserves need some lighting to allow stargazers to travel around safely. But we need to be more thoughtful about how we light up the night; the ecological need for darkness is an important piece of the conservation puzzle that has been overlooked for too long.

Just as some species need fast-flowing water, tall grass or particular soil conditions to thrive, many species need periods of natural darkness. Nighttime darkness should be treated as part of a species' habitat – one that is worthy of the same level of protection as other habitat features upon which organisms rely to carry out their life processes. And it is not just "dark skies" that need protection – terrestrial and aquatic ecosystems need darkness as well.

Ideally, the Ontario government should develop an approach to minimizing light pollution across the province (for example, by requiring outdoor light-reduction measures under the *Ontario Building Code*). Nevertheless, provincial parks and other protected areas – settings that are often rich in biodiversity – are an ideal starting point for preserving darkness for ecological purposes. The Ministry of Natural Resources and Forestry's legislated priority for planning and managing Ontario's parks and conservation reserves is the maintenance of "ecological integrity," a condition in which ecosystem processes are unimpeded. Given the potential impacts of artificial lighting on many species and ecosystems, the ministry should be considering the importance of darkness in maintaining ecological integrity in Ontario's protected areas.

A species at risk's need for periodic darkness could also be specifically addressed in recovery plans and management plans prepared under the *Endangered Species Act, 2007*, as well as in the habitat summaries that the ministry prepares for some species at risk. Doing so would assist the government in ensuring that the recovery and management actions it undertakes for those most vulnerable species take into account any potential impacts of artificial lighting.

It is hard to see any downside to eliminating excess outdoor lighting at night. It would protect ecosystems, conserve energy, and safeguard social, cultural and scientific interests in viewing the night sky. The ECO urges Ontario – and the Ministry of Natural Resources and Forestry in particular – to start consistently incorporating consideration of the ecological need for darkness into conservation research, planning and decision making, particularly in the province's protected areas.

For more information, please refer to Section 4.5 of the Supplement to this Annual Report.

Comments from the MNRF

MNRF recognizes the ecological importance of protecting the night skies. Ontario's protected areas provide an opportunity to champion nighttime darkness preservation through best management practices, education and outreach to visitors.

Many protected areas already have protective zoning (e.g., wilderness and nature reserve zones in provincial parks) that restrict development which could be a source of light pollution.

Ontario Parks has taken the initiative to minimize light pollution and conserve electricity by using innovative technologies available at reasonable cost for new and replacement installations. Since 2011, Ontario Parks' building design specifications are dark-sky compliant, in accordance with the International Dark Sky Association, without compromising the safety of park visitors and/or staff.

Photo credit - NASA's Earth Observatory (right)

In provincial parks with Natural Heritage Education programs, park staff conduct interpretive night hikes, many of which explore the ecology of nocturnal wildlife and emphasize the importance of protecting dark skies.

For species at risk for which artificial light has been highlighted in the recovery strategy or management plan as a significant threat, MNRF will consider what measures may be appropriate to address the threat.

MNRF will review the Royal Astronomical Society of Canada guidelines for new and replacement lighting in provincial parks, and will continue to support educational programs to enhance awareness of the night environment. In addition, MNRF would welcome applications to conduct research on scotobiology, including the environmental benefits and costs of implementing dark-sky practices.

4.4 Going, Going, Gone: Land Acquisition Programs

In 1959, Canadian playwright and author Merrill Denison donated his 480-hectare property on Mazinaw Lake near Peterborough to the provincial government to be permanently protected as parkland. The province then added more than 7,800 hectares of private and public lands to the Denison property to create Bon Echo Provincial Park. This Canadian Shield refuge now protects a number of rare species, as well as hundreds of aboriginal pictographs on Mazinaw Rock, a cliff that stretches along the eastern shore of the lake. The park also provides beautiful places for visitors to camp, hike and canoe. Such stories are not uncommon in Ontario's history. In fact, the creation of many of Ontario's most treasured parks and protected areas, such as Earl Rowe Provincial Park near Alliston and High Park in Toronto, began when a government agency or environmental group acquired land through purchase or donation to protect it from some form of development.

The reasons to conserve land in its natural state are multifold; it may contain rare or at risk species, it could serve as a corridor that enables wildlife to move great distances across the landscape, or it might be a great place for camping and hiking.

Just as there is an abundance of reasons to conserve land, there are many ways to accomplish it, such as through property tax incentives for owners who maintain their land in a natural state, or land use policies to restrict damaging activities in areas like woodlands or wetlands. Conservation easements and covenants with conservation bodies are also gaining popularity as other means to ensure the preservation of natural landscapes. With these options, a landowner enters into a permanent and legally-binding agreement to limit certain land uses like development and subdivision on the property, regardless of any future changes to ownership. However, land acquisition, which is the legal transfer of land through donation or purchase for the purpose of permanent preservation, is one of the most effective approaches for long-term protection and management.

Land acquisition in southern Ontario is critically important, yet it is also the most challenging part of the province in which to do it. Public lands held by the Crown make up 87 per cent of Ontario, but the vast majority of southern Ontario is privately owned. In northern Ontario, the task is often much simpler; if the government wishes to expand a protected area, the Crown simply changes the designation of land that it already controls. This disparity in public versus private land ownership is one reason why provincially protected areas cover nine per cent of the entire province but less than one per cent of southern Ontario. The situation is made even more pressing as southern Ontario is home to more species at risk than anywhere else in Canada, as well as rare ecosystem types found nowhere else in the province.

EARL ROWE PROVINCIAL PARK

In the late 1950s, Earl Rowe (a former Lieutenant Governor of Ontario) donated a parcel of farmland along the Boyne River, west of Alliston, to the provincial government. The province then purchased additional land around this property to form Earl Rowe Provincial Park – now 312 hectares in size. Over the years, the government converted former agricultural lands into a recreational park that has provided a place for visitors to camp, bike, hike, swim and enjoy the outdoors. At the same time it has protected many species of flora and fauna – including two at risk reptile species – from nearby development.

Challenges of Acquiring Conservation Lands

Acquiring conservation land can be challenging. To begin with, there needs to be a willing seller or donor of desirable land and an able buyer. Sellers and donors usually control the land acquisition process by determining what land is available, when it is available and under what terms it is acquired. When a desired property becomes available, the buyer must be ready and able to secure it, often with little notice.

This leads to another challenge: land acquisitions are expensive, especially in southern Ontario. Property value is usually the biggest cost associated with purchasing land, and it varies depending on location, property characteristics and land use designations or zoning. In Vaughan, for example, an agricultural or forested property without development potential could cost between $15,000 and $500,000 per acre.

There are many other costs to consider when acquiring conservation land, such as legal fees, appraisals, surveys, environmental audits, administration fees, taxes and interest charges. For example, the transaction costs to acquire a donated property could be up to $50,000. Once the property is acquired, there may be additional costs for clean-up, monitoring, maintenance and planning.

In addition, when the province acquires private lands, it sometimes agrees to pay municipalities compensation for future lost property tax revenue. The Ministry of Natural Resources and Forestry (MNRF) pays approximately $7 million in lieu of taxes to municipalities each year for lands it manages within some protected areas. This significant, ongoing financial commitment can be a barrier for the MNRF to acquire other conservation lands.

HIGH PARK

In the late 1800s, the Howard family donated their 67 hectare lakeside estate to the City of Toronto under the condition that it would be permanently protected as public parkland. The City then purchased 95 additional hectares of land around the Howard's property to form High Park – the largest park entirely within the City's boundaries. This oak-savanna refuge has protected many rare natural features and species from surrounding urban development over the years, while at the same time, providing a place for Toronto residents and visitors to enjoy the outdoors.

(De)Evolution of Provincial Programs

Since 2000, the ECO has noted a number of ongoing concerns about the province's land acquisition activities, including a lack of strategic planning and stable fi.nding. The province's land acquisition budget was frozen at approximately $4–6 million annually between 1998 and 2011, despite the increasing price of land in southern Ontario.

Ministry of Natural Resources and Forestry

Over the past two decades, there have been a number of short-lived MNRF programs that provided funds to other agencies and organizations to acquire conservation lands. For example, the Ecological Land Acquisition Program ran from 2002 to 2005 with a total budget of $10 million. Under the program, the ministry provided participants, such as conservation authorities and environmental organizations, with matched funds to acquire ecologically significant lands. Between 2006 and 2011, the Land Securement Program granted $23 million to partner agencies, such as the Nature Conservancy of Canada and Ducks Unlimited Canada, to help secure 13,742 hectares of conservation land in Ontario. Currently, the MNRF does not have any programs focused solely on conservation land acquisitions. All of the programs have ended or the ministry has not allocated any additional funding to keep them going.

In October 2014, the MNRF advised the ECO that it "continues to work closely with public and private conservation partners to conserve and protect significant natural features on private land through a variety of methods." For example, the ministry informed the ECO that it continues to provide support to partners through existing or new programs, including the Conservation Land Tax Incentive Program and the Land Stewardship and Habitat Restoration Program. However, the ECO found that the Land Stewardship and Habitat Restoration Program's guidelines clearly state that land acquisitions and associated costs are not eligible for funding.

The MNRF advised the ECO that between 2011 and 2014, it secured 1,151 hectares of land adjacent to regulated provincial parks and conservation reserves under its Ontario Parks Capital Land Acquisition Program. However, the amount of money the MNRF allocated and spent under this program has decreased drastically over the last five years. The ministry reduced the program's allocation from $500,000 in the 2010/2011 fiscal year to just $1,000 in the 2014/2015 fiscal year. While the ministry spent more than $1.7 million in the 2010/2011 fiscal year on acquiring parkland, it spent only $6,263 in the 2013/2014 fiscal year under this program – barely enough to cover the transaction costs for acquiring one donated property.

The MNRF also stated that it is currently "pursuing additional strategic acquisitions with other provincial ministries." For example, in 2014, the ministry acquired over 361 hectares of land associated with the former Leslie M. Frost Natural Resources Centre, in Dorset, through a transfer from the Ministry of Economic Development, Employment and Infrastructure. It should be noted that in this case, and likely numerous others, the government is not undertaking land acquisition; it is simply shifting responsibility internally for a parcel of public land that it already owns.

Ontario Heritage Trust

The Ontario Heritage Trust (the "Trust") is an agency of the Ministry of Tourism, Culture and Sport. Some of its legislative objectives are to acquire property in trust for the people of Ontario and to preserve, maintain, reconstruct, restore and manage property of natural and scenic interest. In 2005, the Trust began to administer the Natural Spaces Land Acquisition and Stewardship Program with $6 million in funding from the provincial government. Under the program, conservation bodies can apply for matched funding to: conserve and protect provincially significant heritage systems through the acquisition of lands and the use of conservation easements in southern Ontario; and to assist with the stewardship of lands that are acquired. The Trust or another public agency holds the title or an easement to any acquired land. In the last 5 years, the Trust has acquired 8 natural heritage properties with a combined area of over 150 hectares.

While the Natural Spaces Land Acquisition and Stewardship Program is technically still active, the provincial government has not provided any additional funding to the Ontario Heritage Trust since 2005. Moreover, the Trust does not

have a budget for any real property or easement acquisitions. The Trust can only acquire lands with the support of external funds and donations in kind. Without consistent and dedicated funding, it is unlikely that the Trust will be able to support conservation land acquisitions to the level that the MNRF once did through the programs discussed above.

ECO COMMENT

Land preserved in its natural state offers many environmental, economic and social benefits. For instance, it could protect a provincially significant woodland from residential development, thereby maintaining the habitat for many species, reducing water and air pollution, increasing adjacent property values, and improving the health of nearby residents. Land acquisition is one of the most effective ways in which to achieve permanent protection of natural lands. Properties acquired by government agencies or environmental groups can be used to create or expand parks, trail networks, conservation areas and nature reserves. An effective land acquisition program, guided by strategic planning and supported with sufficient funding, should be a key plank of the government's efforts to conserve biodiversity in Ontario.

From 1989 to 2012, the MNRF allocated on average $4.7 million annually to programs that made it possible for land trusts, conservation authorities and other conservation bodies to preserve thousands of hectares of wetlands, woodlands, grasslands and other natural spaces. In our 2005/2006 Annual Report, the ECO cautioned that this level of funding was insufficient to keep pace with increasing property values. Today, the situation is even bleaker. The ECO is troubled that the MNRF and the provincial government have eliminated virtually all funding for land acquisition activities. In fact, the government did not allocate any money towards programs that support land acquisitions from 2013 to 2015. As biodiversity, natural heritage and protected area management are among the MNRF's core activities (and the province has an obligation to achieve the international Aichi target to conserve at least 17 per cent of its land and inland waters by 2020), this is simply unacceptable.

Governments around the world recognize the importance of acquiring land for conservation purposes. South of the border, for example, the State of California spends an average of $177 million (U.S.) per year on acquiring land and conservation easements that protect habitat and provide other ecosystem services. The State of Florida has the largest public land acquisition program in the United States; since 2001, the state has acquired almost 290,000 hectares of land with $2.9 billion (U.S.).

Without government help, the costs to acquire land may be too high for some non-government groups to bear, and important natural spaces could be lost. Given the countless benefits of preserving greenspace, it is imperative that the provincial government re-establish a program to support conservation land acquisitions in Ontario.

RECOMMENDATION 6:
The ECO recommends that the MNRF resurrect a dedicated annual fund and strategic priorities for land acquisition for protected areas.

Comments from the MNRF

Ontario supports national and international initiatives such as Aichi Biodiversity Targets. The amount of protected area and conservation lands has increased since 2010, although there remains significant work to achieve the target of 17% by 2020.

Ontario's system of provincial parks and conservation reserves currently protects about 10% of the province. Significant achievements toward this goal are challenging in southern Ontario where development pressures are high and there is little public land. However, other agencies, including municipalities, conservation authorities and non-governmental organizations, also own and manage properties with significant natural heritage values in southern Ontario.

MNRF also has a strong history of working with partners to conserve the province's biodiversity and natural heritage on privately owned lands. For example, through the Conservation Land Tax Incentive Program and the Managed Forest Tax Incentive Program, landowners commit to being good stewards of provincially significant wetlands, Areas of Natural and Scientific Interest, endangered species habitat and woodlands in return for a reduction in property taxes.

No comments provided by the MTCS.

4.5 Moving North: Expansion of Wild Turkey Hunting

The eastern wild turkey (*Meleagris gallopavo silvestris*; "wild turkey") is a large, ground-nesting bird native to North America. Prior to European settlement, the wild turkey was common in mixed and temperate forests, as well as savannas, of the eastern United States and southern Ontario. Its historic range in Ontario spanned from Lake Erie to Georgian Bay (see Figure 4.5.1).

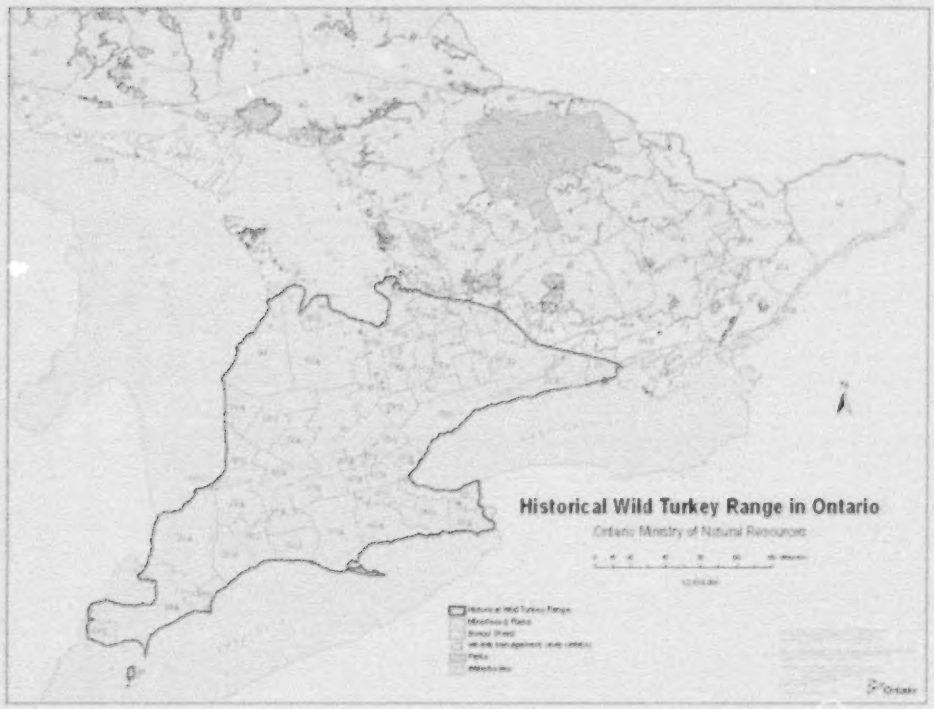


Figure 4.5.1. Historical range of eastern wild turkey in Ontario (Source: *Wild Turkey Management Plan for Ontario*, Ministry of Natural Resources, 2007).

During the 1800s, southern Ontario's landscape underwent major changes as European settlers cleared extensive areas of forest, often to create farmland. Governments of the day also did little to regulate hunting. As a result, the wild turkey population declined and the species became extirpated from Ontario by 1909. Wild turkey populations in most of North America suffered similar fates.

In 1984, the Ministry of Natural Resources and Forestry (MNRF) began to reintroduce wild turkey into southern Ontario. Over the next two decades, the MNRF released 4,400 turkeys at 275 sites across the province, including birds from the U.S. and birds that were trapped and transferred from within Ontario. Most of the release sites were located within the wild turkey's historical range; however, there were some birds released outside of their historical range, including on St. Joseph Island (in northwestern Lake Huron) and around Sudbury.

Figure 4.5.2. Approximate breeding range of eastern wild turkeys in Ontario (2007) (Source: *Wild Turkey Management Plan for Ontario*, Ministry of Natural Resources, 2007).

The last wild turkey releases were made by the MNRF in the winter of 2004/2005. Ontario's wild turkey population is now self-sustaining, and its distribution is larger than its historical range (Figure 4.5.2). In 2007, the ministry reported that the population was about 70,000 birds. Since then, the turkey's range has expanded northward, up to Parry Sound and Sudbury. Many of these "northern" birds have naturally migrated, escaped from farms or have been released illegally. Wild turkeys can survive north of their historical range, but conditions such as snow depth, colder temperatures and limited food availability make these areas less favourable habitat.

Managing Ontario's Wild Turkey Hunt

The MNRF's primary population management objective for wild turkey is to manage them for sustainability in the Mixedwood Plains Ecozone and to provide hunting opportunities where they exist in the Boreal Shield Ecozone. The wild turkey's historical range is within the Mixedwood Plains Ecozone; the Boreal Shield Ecozone is located just north of the Mixedwood Plains Ecozone (Figure 4.5.1).

Nearly all of southern Ontario is now open for wild turkey hunting in the spring season, and parts of southern Ontario are open during the fall hunting season. During the spring season (April 25 to May 31), a hunter can kill up to two bearded wild turkeys, which are typically males. During the fall season (for 13 days after Thanksgiving), a hunter can take either one male or female bird. Hunters must report wild turkey harvest information to the MNRF by noon the day after the bird was killed. In 2014, the MNRF reported that 6,912 wild turkeys were killed in the spring season and 262 birds in the fall season.

In March 2014, the MNRF amended the Open Seasons – Wildlife regulation (O. Reg. 670/98) under the *Fish and Wildlife Conservation Act, 1997* to allow new spring hunting seasons in areas around Parry Sound, Huntsville and Sudbury (wildlife management units or WMUs 42, 47, 49 and 50), and a fall hunting season in the Pembroke area (WMU 59).

IMPLICATIONS OF THE DECISION

Wild turkeys are prolific breeders and have a high rate of reproduction. Because of these traits, the MNRF stated that hunting adult male wild turkeys in the spring after the breeding season has "no direct influence on observed population fluctuations or sustainability." Given that hunters are allowed to kill only bearded turkeys in the spring season, and that the provincial population of wild turkeys appears to be increasing, the addition of four WMUs to the spring hunting season should have little impact on wild turkey abundance in Ontario. Additionally, the MNRF stated that a conservative fall turkey harvest will not cause a fluctuation in wild turkey populations; changes in population are primarily based on overall annual hen (adult female) survival and reproductive success.

The areas added to the spring hunting season, however, are north of the wild turkey's historical breeding range. As such, the climate and habitat may not be as suitable for the species' long-term survival as the more southern locales. It is possible that the addition of a spring hunt could deplete local wild turkey populations, particularly in years with severe winter weather. This raises broader questions about how to manage species outside of their historical ranges. Scientists predict that climate change will alter the ranges of many such species. For example, the Audubon Society hypothesized that the wild turkey climatic range will move into northern Ontario by 2050.

ECO COMMENT

Wild turkeys were hunted out of the province at the beginning of the 20th century. Logging and land clearing also drastically changed southern Ontario's natural environment, altering the habitat of many species. Forests, wetlands, savannas and prairies were lost as settlements and agriculture expanded. Since then, efforts have been made to conserve and restore natural areas, as well as to reintroduce a handful of lost species like wild turkeys. The reintroduction of wild turkeys and their dramatic range expansion is a wildlife management success in Ontario.

As a result of reintroduction efforts, it is now common to see flocks of wild turkeys roaming fields in southern Ontario. Turkey populations across the region are currently self-sustaining and spreading northward. As this species has proliferated, the ministry has gradually expanded recreational hunting opportunities for wild turkeys. The MNRF's most recent expansion of wild turkey spring hunting into areas near Parry Sound, Huntsville and Sudbury and fall hunting near Pembroke is consistent with the ministry's management objectives.

The management of Ontario's wild turkeys raises interesting broader issues about the migration of different species into previously unoccupied habitat. The natural environment is dynamic, constantly changing over time through the influence of various forces. Shifting temperatures and weather patterns, for example, are major drivers of ecosystem changes. Species that were not present historically in Ontario, like opossums, have adapted to these changes and can now be found in the province. Similarly, evolving environmental conditions in Ontario mean that wild turkeys, which are naturally limited in their range by temperature and snow depth, can now be found in more northern parts of the province.

The northern range expansion of the wild turkey is indicative of changing environmental conditions in Ontario and the adaptability of the wild turkey. This trend is expected to continue. In 2010, MNRF scientists modelled projected shifts in climatic conditions as they relate to Ontario's ecoregions and ecozones. For example, they showed that what were common climatic conditions in the past in the area around Barrie will soon become common in the area around Sudbury (Figure 4.5.3). In effect, they were accurately predicting the northward shift of some species, like wild turkeys, that is now occurring. The MNRF scientists recommended the development of integrated monitoring programs to help detect and verify change as it occurs, in order to guide strategic decision making by the ministry.

Figure 4.5.3. Predicted migration of the climatic conditions of the Lake Simcoe-Rideau Ecoregion 6E (within the Mixedwood Plains Ecozone) based on emission projections (Source: *Current and Projected Future Climatic Conditions for Ecoregions and Selected Natural Heritage Areas in Ontario*, Climate Change Research Report CCRR 16, MNRF, 2010).

Wild turkeys are an adaptable species that can readily respond to changing environmental conditions by naturally expanding their range. However, many other species may have more difficulty adapting to follow changing climate patterns, especially species that occupy a very specific ecological climatic niche. In addition, natural and human barriers (e.g., lakes and highways), as well as different geologic and soil conditions, restrict the movement of a variety of species. Shifts in species ranges will also have significant socio-economic implications, especially for commercial activities (e.g., forestry, trapping and fishing) or recreational activities (e.g., hunting) that depend on predictable patterns of biodiversity. Given that we are already in a changing environment, the MNRF should prioritize ecological connectivity in its planning and management of all Crown lands in Ontario, with particular priority on linkages between protected areas.

For a more detailed review of this decision, please refer to Section 1.3.6 of the Supplement to this Annual Report.

Comments from the MNRF

Ontario's turkey management policy is ecologically based and designed to ensure population sustainability within the Mixedwood Plains landscape where turkeys were historically found. The policy recognizes the current range extent of wild turkey in the province, potential for further natural range expansion and public interest in

harvest opportunities where turkeys are present. MNRF takes an adaptive approach to turkey management and if environmental conditions change significantly Ontario could consider consulting on changes to turkey management policy.

MNRF employs a similar adaptive approach with other wildlife species in response to environmental change recognizing the inherent uncertainty in predicting future state. Management changes will be informed by ongoing efforts to assess and predict species and community response to climate change, and will be supported by land use and forest management planning policies.

4.6 The Ecological Impacts of Waterpower Projects on Fish Passage

Like most animals, fish need to be able to move from place to place in order to successfully complete their life cycles. Many fish species require specific habitats at different life stages in order to feed, successfully reproduce and survive. These habitats include: overwintering, spawning, nursery and foraging areas; refuges where fish can safely avoid droughts and floods; and corridors between these areas. In many cases, the habitats needed to fulfil these functions are quite distinct and removed from one another.

Some fish in Ontario migrate great distances over the course of their lives. For example, the American eel (*Anguilla rostrata*) is born, spawns and dies in the Atlantic Ocean's Sargasso Sea, but migrates as far as 6,000 kilometres to mature in Ontario's rivers and lakes. Other species, like lake sturgeon (*Acipenser fulvescens*), remain in freshwater their entire lives, but also migrate great distances to spawn. And some, like walleye (*Sander vitreus*), northern pike (*Esox lucius*), and white sucker (*Catostomus commersonii*), may not travel as extensively but still migrate up Ontario rivers and streams in search of suitable spawning habitat. Migration and movement are clearly important to the life cycle and population health of many Ontario fish species.

Not surprisingly then, dams and other barriers that hamper fish passage can have serious impacts on fish populations and aquatic ecosystems. For example, American eel abundance has declined in the Upper St. Lawrence River and Lake Ontario by about 99 per cent since the 1970s, due, at least in part, to the barriers created by dams on the St. Lawrence River and its tributaries. Likewise, dams have had substantial impacts on lake sturgeon and the now extinct Atlantic salmon (Lake Ontario population) (*Salmo salar*).

Dams, of course, can be beneficial in supporting flood management, hydro-electricity (waterpower) production, irrigation, drinking water supply and marine transportation. But by blocking fish movement, dams can fragment habitat, interfere with spawning and feeding migrations, reduce a population's size and genetic resiliency, and even eliminate local populations.

FISH PASSAGE AT WATERPOWER DAMS

Some of the largest and most environmentally significant barriers to fish passage are waterpower facilities. Hydro-electric dams not only prevent upstream fish passage, but can also kill or injure fish as they move downstream and get trapped on water intake screens, pass through turbines or plunge over dams.

Fortunately there are ways to improve passage of fish past these obstacles. These include:

- fishways (e.g., diversions, fish ladders and fish elevators), which create alternate channels for fish to bypass and/or move upstream above a dam;
- trap and transport programs that can move fish to the other side of a dam; and
- new "fish-friendly" turbines that can reduce downstream mortality rates.

Determining the best fish passage measures for a dam requires consideration of several factors, including how

to meet the varying passage requirements of different native species; the mere presence of a fishway does not guarantee the safe up- and downstream passage for all species that need it. At the same time, it may be necessary to facilitate the passage of native species while preventing the spread of invasive ones, such as sea lamprey (*Petromyzon marinus*) and species of Asian carp.

Moreover, a specific dam's impacts on fish passage must be considered in combination with those of other dams and obstructions along a waterway. For example, safe passage for the endangered American eel on the Ottawa River has been blocked for decades by more than ten Ontario and Quebec hydro-electric dams (see Figure 4.6.1), none of which have an eel ladder to allow upstream passage. And although two large hydro dams on the St. Lawrence River (the Moses Saunders Power Dam and the Beauharnois Generating Station) are equipped with fish ladders and navigation locks, together these two waterpower facilities reportedly kill about 40 per cent of the eels that pass through their turbines. The combined impacts of Ontario's more than 2,500 dams, most of which are many decades old, have created a substantial threat to several fish populations.

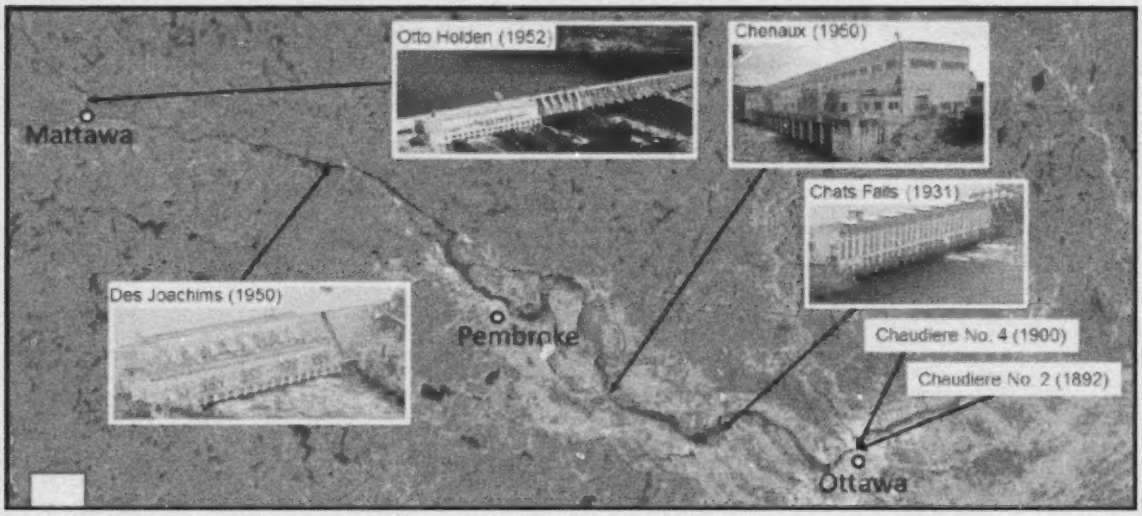


Figure 4.6.1. The locations (and dates of construction) of some of the Ontario hydro-electric dams on the Ottawa River. (Sources: Ontario Power Generation and the Independent Electricity System Operator).

The government plans to increase Ontario's waterpower capacity from about 8,300 megawatts (MW) to 9,300 MW by 2025. This will require expanding the output of existing waterpower facilities and building new ones, creating even more fish barriers. Given the existing impacts of Ontario's thousands of dams on fish movement, and the province's plans to expand hydro-electric development, the ECO decided to look at how well Ontario's legislative and policy framework for dams, specifically hydro-electric dams, has worked in ensuring fish passage.

ONTARIO'S LEGISLATIVE AND POLICY FRAMEWORK FOR ENSURING FISH PASSAGE

The *Fisheries Act*

The federal *Fisheries Act* is the primary legislation for protecting fish and fish habitat in Ontario and across Canada. As a result, Ontario's Ministry of Natural Resources and Forestry (MNRF) essentially defers to the federal Department of Fisheries and Oceans (Fisheries and Oceans Canada) to make decisions related to fish passage.

Under the *Fisheries Act*, the federal Minister of Fisheries and Oceans may put conditions on dams and make orders to prevent harm to fish or to ensure fish passage, including ordering a dam owner to construct a fishway. However, this discretionary power has rarely, if ever, been used to require the installation of a fishway in Ontario;

Photo credits - Ontario Power Generation (left) and MNRF (right)

of the more than 2,500 dams in Ontario, less than 50 (2 per cent) have been identified as having a fishway. Likewise, of the more than 200 waterpower dams in the province, only a couple have a permanent fishway.

The *Lakes and Rivers Improvement Act*

The construction of most new dams, including hydro-electric dams, requires provincial approval under the *Lakes and Rivers Improvement Act* (*LRIA*). The *LRIA* authorizes the Minister of Natural Resource and Forestry to put conditions on these approvals, and to order owners of existing dams to provide fishways that allow fish passage. However, a search on the Environmental Registry suggests that this type of order has not been issued in at least 20 years. Moreover, the scarcity of fishways in Ontario again suggests that Ministerial discretion has rarely, if ever, been used to require their installation.

Recognizing the importance of fish passage, and the unreliability of discretionary powers, in our 2009/2010 Annual Report the ECO stated that the MNRF:

> should require, through approvals issued under the [*LRIA*], that all new dams facilitate natural passage of fish by installing fish ladders or other similar structures. In addition, [the MNRF] should require all existing dams to be retrofitted with fish ladders or other similar structures to facilitate safe and natural migration along the course of all Ontario's streams and rivers, through *LRIA* approvals for improvement or repair to dams.

Five years later, the MNRF has not acted on this.

The *Environmental Assessment Act*

Proponents of waterpower projects with a generating capacity greater than 200 MW must go through an individual environmental assessment (EA) process under the *Environmental Assessment Act* (*EAA*). This involves getting government approval of an EA document that describes: the proposed project; its purpose, rationale, possible alternatives and potential environmental effects; and actions necessary to prevent, change, mitigate or remedy these impacts. However, many weaknesses have been identified with the *EAA*'s implementation since it was enacted (see Part 5.1 of our 2013/2014 Annual Report). Additionally, many dams and waterpower projects were built before the *EAA* was passed in 1975 and, thus, were not subject to the Act's requirements to consider environmental factors (such as fish passage) prior to construction.

Proponents of new waterpower facilities with a generating capacity less than 200 MW are subject to a streamlined, proponent-driven Class EA process that does not require individual project approval under the *EAA*. The *Class Environmental Assessment for Waterpower Projects* requires waterpower proponents to prepare an Environmental Report that includes: a description of the environmental factors assessed; the potential adverse effects on these factors; details of the effects; and an impact management strategy. The Class EA specifically instructs proponents to assess a project's potential to affect fish migration, injury and mortality.

At the time of writing (March 31, 2015), six waterpower projects had completed the Class EA process since it came into effect in 2008. The ECO reviewed the Environmental Reports prepared for these six projects and found that their consideration of these projects' impacts on fish migration, injury and mortality was often cursory, incomplete or absent (see Table 1 in Section 4.6 of the Supplement to this Annual Report).

The Environmental Reports for five of these six Class EA-completed projects included an inventory of the fish species found in the project area. Several of these species are known to use fishways elsewhere in Ontario (see Table 2 in Section 4.6 of the Supplement to this Annual Report). If a species is known to use a fishway, movement is likely an important component of its life history – a component that should be considered during the EA process. However, the Environmental Reports generally did not discuss measures to address a project's impacts on the movement of any fish species besides the endangered American eel.

Moreover, because the Class EA (and *EAA*) does not require it, the Environmental Reports did not address the cumulative impacts that their project, together with other dams and barriers on the waterway, might have on fish passage, injury and mortality. For example, one Environmental Report did not consider the additive fish passage impacts of a generating station just 125 metres downstream. Another used the abundance of other waterpower facilities on the waterway as justification for not considering the project's impacts on fish passage. An EA that considers a project in isolation likely underestimates the potential environmental threats and the measures needed to address them.

The *Endangered Species Act, 2007*

There are currently 5 endangered, 11 threatened and 10 special concern fish species regulated under Ontario's *Endangered Species Act, 2007* (*ESA*).

Recovery Strategies and Government Response Statements:

For each endangered and threatened species listed under the *ESA*, the Minister of Natural Resources and Forestry must ensure that a recovery strategy is prepared that describes threats to the species' survival and recovery, and recommends how to achieve protection and recovery objectives. Once a strategy is finalized, the Minister must ensure that a government response statement is prepared within nine months that summarizes the prioritized actions the government intends to take in response.

However, as of May 2015, recovery strategies and government response statements were overdue for more than half of Ontario's endangered and threatened fish species – some by almost two years. Worse, even though almost all the completed recovery strategies specify that barriers to passage potentially threaten species' recovery, the corresponding government response statements lack specific actions to address this threat (see Table 3 in Section 4.6 of the Supplement to this Annual Report).

ESA Agreements and Mitigation Plans for Hydro-Electric Generating Stations:

Previously, waterpower operators were exempt from the *ESA*'s prohibitions against killing a species or destroying its habitat only if they entered into an agreement with the Minister that: describes "reasonable steps to minimize adverse effects on the species;" and confirms, in the Minister's opinion, that compliance with the agreement will not jeopardize the survival or recovery of the species in Ontario. But in July 2013, the government changed this requirement, allowing waterpower operators to instead prepare and comply with a "mitigation plan," which does not require ministry review or approval. When asked by the ECO in January 2015 for copies of completed mitigation plans, the MNRF did not provide any, and responded that it had not yet requested these documents from waterpower operators. As the American Eel Recovery Team reported in 2013, "with the exception of recent trap and transport and stocking (translocation) efforts at [the Moses-Saunders Power Dam] ... mortalities due to turbines at Ontario's hydroelectric facilities continue with no attempt to mitigate them."

ECO COMMENT

Despite the ecological importance of fish passage, Ontario's legislative and policy framework appears to be largely ineffective at ensuring that waterpower projects don't impede fish movement.

The discretionary ministerial powers afforded under both the federal *Fisheries Act* and the provincial *LRIA* have rarely, if ever, been used to actually require fishway construction. Moreover, Class EAs for six completed waterpower projects seem to overlook fish passage for species other than the American eel, and to ignore the cumulative impacts that multiple projects and barriers might have on fish migration and mortality. Also, the *ESA* has so far failed to ensure passage for even Ontario's at-risk fish species, because of: delayed recovery strategies; overdue and ineffective government response statements; and weakened oversight of waterpower operators' mitigation measures.

Determining how to best ensure fish passage at a waterpower dam is an important and complex decision – one that should be made transparently with public participation and government accountability. However, decisions

about dam design and fish passage requirements are not made in a transparent and accountable manner. Although the Class EA process invites public consultation on a project's possible environmental impacts and mitigation options, detailed decisions about specific design and operational elements are generally not made until the approvals stage, where they are shielded from public scrutiny and appeal. Unlike *LRIA* orders to construct fishways, approvals of new dams are not prescribed under Ontario's *Environmental Bill of Rights, 1993 (EBR)*, exempting them from the *EBR*'s public notice, consultation and appeal requirements. Further, because section 32 of the *EBR* exempts decisions made under the *EAA* from these provisions, even if *LRIA* dam approvals were prescribed, the public likely would still be denied the right to comment on or appeal them. (For more information about how section 32 of the *EBR* obstructs public participation rights, see Part 1.3 of the ECO's 2012/2013 Annual Report).

The ECO recognizes that ensuring fish passage, particularly at historical dams, can be complicated and imposes added costs on waterpower proponents. But ignoring the necessity for fish passage can create ecological costs for Ontario's fish species and river ecosystems. Despite the legislative and policy framework in place, only a tiny fraction of the thousands of dams in the province have a fishway. The ECO urges the MNRF to fix this long-standing and significant ecological problem for existing and future projects.

For more information, please refer to Section 4.6 of the Supplement to this Annual Report.

Comments from the MNRF

The provision of fish passage at dams is an important consideration toward the sustainable management of Ontario's fisheries and the protection and recovery of species at risk. Under the *LRIA*, *ESA* and the Waterpower Class EA process, MNRF works with partner agencies and the waterpower industry to ensure interests related to fish passage, fish habitat, hydrology, fisheries management objectives, aquatic invasive species concerns and socioeconomic factors are considered.

Through an established provincial-federal protocol, Fisheries and Oceans Canada (DFO) has the lead role in the consideration of fish passage requirements for new dams. MNRF supports DFO's project reviews by providing Fisheries Management Objectives and fish and fish habitat information. For existing dams, MNRF may consult with DFO and issue an Order, or integrate fish passage considerations into approvals, under the *LRIA*.

Waterpower facilities that are likely to contravene the *ESA* by adversely affecting species at risk during their construction, modification or operational activities are required to avoid potential contraventions and/or mitigate impacts through an *ESA* permit or rules in regulation.

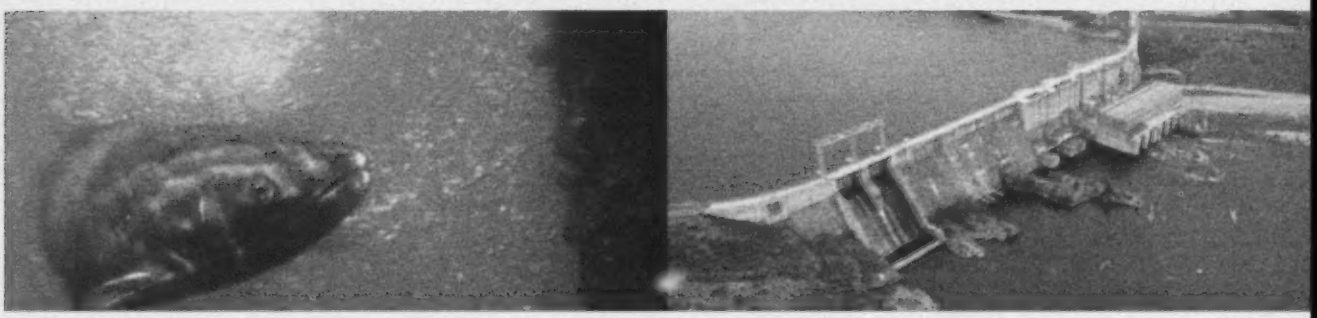


Photo credits - Biotactic Fisheries Research and Monitoring © 2010 (left) and Ontario Power Generation (right)

MNRF remains committed to the timely and transparent development of recovery strategies and government response statements for all threatened and endangered species. Government response statements are developed based on a variety of inputs, including recovery strategy recommendations, comments from the public/Aboriginal communities/stakeholders, and consideration of social and economic feasibility.

Comments from the MOECC

Proponents are asked to consider potential cumulative effects and to consult with appropriate agencies on this issue as a best practice during their Class EA process as stipulated in the ministry's *"Code of Practice: Preparing, Reviewing and Using Class Environmental Assessments in Ontario"* (January 2014).

As well, as part of the Waterpower Class EA, proponents are required to:

- confirm the potential effects of their project;
- determine appropriate avoidance, prevention and/or mitigation strategies;
- assess the net effects of the project (Page 38 *Class Environmental Assessment for Waterpower Projects*, November 2014 version); and
- consult with the MNRF and Fisheries and Oceans Canada to determine the potential for negative impacts and how they might be addressed.

4.7 The Return of the Spring Bear Hunt

Few wildlife issues in Ontario have sparked public interest like the government's cancellation, and recent revival, of the spring bear hunt.

The Ministry of Natural Resources and Forestry (MNRF) cancelled the annual spring hunt for black bears (*Ursus americanus*) in 1999 to prevent cubs from becoming orphaned and starving to death. When the ministry proposed cancelling the hunt, Ontarians flooded the Environmental Registry with over 35,000 comments. After the spring hunt was cancelled, the ministry received an increase in complaints about interactions with "nuisance bears." According to the MNRF, Ontario is home to a healthy and sustainable black bear population of about 85,000 to 105,000 animals. The overlap in black bear ranges and human settlements in Ontario, and the need for black bears to consume large quantities of food before hibernating, can lead to interactions between humans and bears – particularly near potential food sources.

The ministry responded to the increase in complaints by striking an independent Nuisance Bear Review Committee to review the issue. In 2003, the committee reported that increased nuisance bear activity was not related to the cancellation of the spring hunt but rather to the periodic scarcity of natural foods. The committee also found that over 50 per cent of the nuisance bear complaints it reviewed involved the presence of garbage, barbecues or grease – attractants the committee considered easy to remove. Concluding that "there was no evidence that spring harvest reduced nuisance bear activity," the committee recommended ways that the MNRF could reduce human-bear conflicts, such as stressing the removal of bear attractants.

The ministry responded by launching the Bear Wise program in 2004, introducing: a system (including a toll-free phone number) for reporting problem bear incidents; a response program for managing human-bear conflicts (including trapping, relocating and killing problem bears); an education program to promote ways to avoid attracting bears; and a prevention program to help communities reduce human-bear conflicts. The MNRF also developed a toolkit to help municipalities draft Bear Wise by-laws (see box, "Garbage Placement By-Laws in Pilot Project Municipalities"). Over the years, however, the MNRF has substantially reduced Bear Wise's funding for education programs and community outreach projects. In spring 2012 the MNRF reduced Bear Wise staff and stopped trapping, relocating and assisting in site-specific conflicts with problem bears, except in support of police services in responding to emergency situations involving bears that pose an immediate threat to public safety. (See Part 3.6 of the

ECO's 2009/2010 Annual Report for more information about the MNRF's management of black bears.)

The Black Bear Management Pilot Project

In April 2014 the MNRF decided to temporarily re-introduce a spring black bear hunting season in eight wildlife management units (WMUs) in and around several northern communities, including Timmins, Thunder Bay, Sudbury, Sault Ste. Marie and North Bay. (WMUs are land units within which the MNRF sets parameters for the sustainable management of species.) The ministry's stated purpose for this pilot project was to reduce human-bear conflicts and improve public safety.

To enable the pilot project, the MNRF amended O. Reg. 670/98 (Open Seasons – Wildlife) under the *Fish and Wildlife Conservation Act, 1997* (*FWCA*), creating an open season for Ontario residents with a bear hunting licence to hunt black bears in WMUs 13, 14, 29, 30, 36, 39, 41 and 42 from May 1 to June 15 in 2014 and 2015. Since 1999, black bear hunting had been limited to a fall season, during which hunters with a bear licence tag have been allowed to kill one bear per year (unless issued a second game seal to kill one additional bear). When the MNRF amended O. Reg. 670/98, the ministry also amended O. Reg. 665/98 (Hunting) under the *FWCA* to prohibit shooting, or attempting to shoot, a cub or a female accompanied by a cub in May or June. This amended regulation also required resident hunters who were issued a bear hunting licence tag on or before June 15 to return a questionnaire on their spring hunting activities.

GARBAGE PLACEMENT BY-LAWS IN PILOT PROJECT MUNICIPALITIES

Since 2006, the Ministry of Natural Resources and Forestry's (MNRF's) Bear Wise by-law toolkit has outlined ways that municipal by-laws can be amended to reduce the availability of bear attractants and the occurrence of human-bear conflicts. However, municipal implementation of this guidance has been inconsistent. For example, the MNRF's toolkit suggests residents be required to put garbage in bear-proof containers and to only place their garbage at the curb on the day of pickup (e.g., 6 a.m. to 7 p.m.). However, several municipalities in pilot project WMUs (including North Bay, Sault Ste. Marie, Sudbury and Thunder Bay) still allow residential garbage to stand at the curb overnight in plastic bags (see Table 2 in Section 1.3.7 of the Supplement to this Annual Report). By contrast, Elliott Lake (not included in the pilot project, but located nearby) requires garbage to be contained in plastic bags and placed in cans with secure water-tight lids.

IMPLICATIONS OF THE DECISION

Conditions Suggested by the Nuisance Bear Review Committee Ignored

To "ensure that the black bear population is managed in a sustainable manner and to minimize chances of the orphaning of cubs of the year," the 2003 Nuisance Bear Review Committee had suggested limiting a re-instated spring hunt in several ways. Suggestions included: prohibiting the killing of females; requiring hunter training; requiring suspended baits; prohibiting the use of dogs; and timing hunting seasons to reduce females' vulnerability. However, the only committee suggestion the pilot project adopted was requiring hunters to report on their spring hunting activities.

The MNRF did not adopt the committee's suggestion to require hunters to submit the teeth and proof of sex of harvested bears (i.e., DNA sample or penis bone). Consequently, hunters submitted teeth from less than 10 per cent of the bears harvested in spring 2014, limiting the MNRF's capacity to monitor the sex-age composition of the bear harvest. Moreover, because the pilot project only prohibited the killing of females *accompanied by cubs*, and because mother bears sometimes leave their cubs in trees while searching for food, the project created the potential for hunters to unknowingly kill new mothers, orphaning their cubs.

Mandatory Reporting, but Low Response Rates

Despite the mandatory requirement to return a questionnaire on spring hunting activities to the MNRF by August 1, 2014, only 1,474 (45 per cent) of 3,288 hunters (who had purchased a bear hunting licence tag in early 2014) complied. Similarly, as of January 2015, only 41 per cent of the 17,482 resident hunters who were issued a licence in 2014 had completed and returned the fall 2014 questionnaire, a seasonal questionnaire required of bear hunters since 2005. These poor response rates are perhaps unsurprising; hunters' response rates to fall black bear surveys have historically been quite low (60–70 per cent) – even though failing to return a completed bear hunt questionnaire is an offence subject to a fine under the *Provincial Offences Act*. Unfortunately, poor response rates compromise the ministry's ability to assess the bear hunt's impacts on the population and make informed management decisions.

Ecological Impact

In March 2015, the MNRF indicated that 193 bears were reportedly harvested in spring 2014. (For comparison, from 2006–2012, hunters reported an average fall harvest of 1,034 bears per year in the pilot project's eight WMUs.) A spring harvest of just 193 bears (0.18–0.23 per cent of Ontario's black bear population of about 85,000 to 105,000 animals) would likely have little impact on the provincial population. However, without better information on the sex-age composition of the annual harvest, it is difficult to assess the pilot project's potential effect on the population.

Further, a 2008 study by MNRF scientists observed that, "American black bear (*Ursus americanus*) population dynamics are most sensitive to survival of adult females. To ensure that harvest is sustainable, harvest should be skewed to males. In addition, in jurisdictions with a spring harvest, lactating females should not be harvested." But the pilot project only prohibited the killing of females accompanied by cubs, creating the potential for hunters to still kill females without cubs and even mothers without visible cubs in the area. Indeed, the MNRF informed the ECO that at least 32 female bears had been killed in the 2014 spring hunt. As of April 2015, the ministry had not provided the ECO with final data on the number of bears reportedly killed in fall 2014, preventing the ECO from considering the contribution of the spring hunt to the annual harvest.

Pilot Project Unlikely to Reduce Human-Bear Conflicts

Even if the pilot project were to increase the total number of bears killed annually, there is little evidence that killing more bears would reduce human-bear conflicts; recent research by the ministry's own scientists and staff "found no significant correlations between harvest and subsequent [human-bear conflicts]" and "removing more bears did not reduce subsequent conflict." In fact, in 2014, several MNRF staff noted that "although it may be intuitive to assume that harvesting more bears should reduce [human-bear conflicts], empirical support for this assumption is lacking despite considerable research."

Perhaps hunting does not reduce human-bear conflicts because it targets non-nuisance bears in the interior of bear habitat rather than nuisance bears at its periphery, closer to people. In addition, hunting may not target the

Photo credit - Mike McIntosh (left)

age, gender or size of bears that are typically involved in human-bear conflicts.

Although MNRF scientists found no evidence that increased hunting reduces human-bear conflicts, they did find that when natural food supplies (e.g., fruit) are scarce, human-bear conflicts increase. Their research concluded that, "given the variation in natural foods, [bear hunting] is unlikely to prevent elevated levels of [human-bear conflicts] in years of food shortage unless it maintains bears at low densities – an objective that might conflict with maintaining viable populations and providing opportunities for sport harvest." MNRF scientists and staff have suggested that a better strategy is to identify the specific causes of these conflicts and focus on solutions that address them.

Questionable Evaluation of the Pilot Project's Effectiveness

The MNRF proposed several methods for evaluating the pilot project's effectiveness at reducing human-bear conflicts and increasing public safety. These included: exploring ways to limit human-bear interactions; and monitoring the number of hunters, harvested bears, human-bear conflicts and calls to the Bear Wise reporting line. However, the ministry's proposed evaluation failed to mention collecting data on several critical factors (including natural food abundance, garbage availability, human behaviour, and changes to the ministry's management regime) that could affect the reporting rate and perceived success of the project.

It should also be noted that MNRF scientists have found no relationship between the number of complaints made to the Bear Wise hotline and the actual frequency or severity of human-bear conflicts. While the reasons for fluctuations in complaints are not entirely understood, ministry scientists have suggested that an increase in calls after the spring hunt was cancelled may have been due to increased awareness and perception of risk from bears, or to the public's reduced tolerance for bears. Ministry scientists have also argued that liberal hunting regimes (like a spring bear hunt) may not actually reduce the number of conflicts between humans and bears, but "simply promote greater public acceptance of bears, thus resulting in fewer complaints."

PUBLIC PARTICIPATION & *EBR* PROCESS

The controversial proposal in November 2013 to resume the spring bear hunt elicited more than 13,000 comments – both for and against. Hunters and tourist operators were generally supportive, but suggested that the pilot project: be prolonged; include non-resident hunters; and be expanded to all WMUs within black bear range. Opponents of the pilot project argued that a spring bear hunt is inhumane (as adult bears would be killed and orphaned cubs would starve to death), and would have negative environmental consequences.

Some commenters argued that the project would not improve public safety, as research shows that human-bear conflicts are affected not by hunting but by natural food abundance and garbage availability. Pointing out that the Nuisance Bear Review Committee concluded that the spring hunt had little to no impact on nuisance bear activity, one organization found it "inexplicable that the Government of Ontario would now suggest that a renewed spring bear hunt would have this effect." Several commenters suggested that putting money into awareness programs, as well as improving waste management practices, would be more effective in reducing human-bear conflicts.

Supporters and opponents both questioned how the ministry intended to measure the pilot project's success; one commenter argued that, given the many factors that influence complaint frequency, a simple examination of the rate of calls to the Bear Wise reporting hotline would be an inadequate metric of the project's effectiveness. Another argued that, "without information on abundance of natural foods in the wild it will be impossible to understand whether human-bear conflict levels have been affected by this proposed spring harvest."

ECO COMMENT

Given the large size of Ontario's black bear population, the few WMUs included and the relatively few bears reportedly killed in the pilot project's first year, the project may not have a significant ecological impact on the province's overall population of black bears.

Nevertheless, incomplete information on the number, age, sex and location of the bears harvested each year prevents the MNRF from effectively evaluating the hunt's ecological impact and making informed management decisions. The consequences of an error in bear management can be significant; black bear populations are vulnerable to overharvest, particularly of adult females, as they reach sexual maturity late in life and have few offspring. As a result, once a bear population is overharvested, it may take a decade or more to recover. Moreover, where black bears are a keystone species, overharvesting could have negative effects on other species and even the entire local ecosystem. To improve the MNRF's ability to assess the impacts of hunting on the population and make informed management decisions, the ECO encourages the ministry to: require hunters to submit the teeth and proof of sex of all harvested bears; and impose stiff penalties for not returning mandatory bear hunting questionnaires.

Similarly, the ECO is concerned how the MNRF will determine the pilot project's success, especially as a basis for either expanding the project or permanently reviving a spring bear hunt. To effectively evaluate the project's role in reducing human-bear conflicts, the ministry must not only monitor and report on the number and types of human-bear conflicts, but also measure and control for natural food abundance, garbage availability, human behaviour and other factors that might affect the frequency of human-bear conflicts.

The ECO finds it disturbing that the ministry would ignore almost all the conditions suggested by its own Nuisance Bear Review Committee for a re-instated spring hunt. Furthermore, the ECO is troubled that the MNRF's reported reasons for implementing the pilot project seem to be undermined by recent research by its own scientists and staff.

First, the MNRF said it implemented the project in response to increasing concerns from some northern Ontario communities about public safety. However, research by MNRF staff has shown that the frequency of complaints is not related to the frequency and severity of human-bear conflicts. Moreover, ministry data fail to show an increase in human-bear conflict activity in the pilot project's major municipalities.

Second, the ministry's stated purpose for the project was to reduce human-bear conflicts. But research by MNRF scientists indicates that increased hunting does not reduce human-bear conflicts, and that variations in natural food availability play a greater role in such conflicts. In short, research by the ministry's own staff suggests that the pilot project would not achieve its objective of reducing human-bear conflicts.

Easy access to garbage and other bear attractants seems to be a key factor in human-bear interactions. The 2003 Nuisance Bear Review Committee observed that the majority of complaints it reviewed involved garbage, barbecues or grease. Although the ministry encourages municipalities to develop by-laws to reduce human-bear conflicts, it seems that several municipalities in the pilot project's WMUs have not incorporated the suggested measures into their by-laws. Moreover, the ministry has reduced its public education work through the Bear Wise program. Echoing the advice of the Nuisance Bear Review Committee and the ministry's scientists, the ECO encourages the MNRF to assess the causes of human-bear conflicts within communities, and to implement educational and promotional programs to reduce identified sources of conflict.

In summary, in implementing the pilot project, the MNRF: made a bear management decision with incomplete information on the annual harvest; ignored ministry research that calls into question the utility of the pilot project; and disregarded the advice of the committee the ministry struck to review the nuisance bear issue. The ministry has also cut back its public education Bear Wise program, even though communities and residents still have much to do in eliminating or reducing attractants for bears. The ECO urges the MNRF to listen to informed experts, review relevant research and implement human-bear conflict solutions that are actually supported by evidence, science and experience.

For a more detailed review of this decision, please refer to Section 1.3.7 of the Supplement to this Annual Report.

Comments from the MNRF

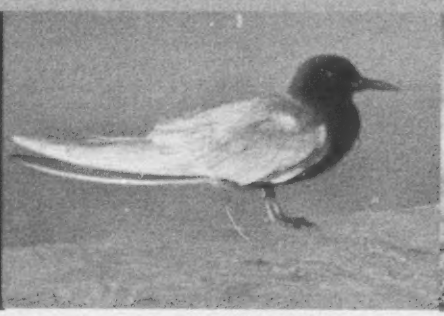
The black bear management pilot program is intended to help evaluate whether hunting can help address a growing concern from municipalities about public safety and human-bear conflicts. The pilot is being monitored and evaluated on an ongoing basis. This monitoring includes assessment of natural food availability through the spring and summer periods.

Through the Bear Wise program, MNRF continues to emphasize that reducing attractants is a key component of any strategy to reduce human-bear conflict. MNRF continues to provide assistance to police services in responding to emergency situations involving bears that pose an immediate threat to public safety. The long-term approach to black bear management will be determined in part on the results of the pilot and through further public consultation.

Photo credits - Mike McIntosh

Part 5

Species at Risk: Going Through the Motions

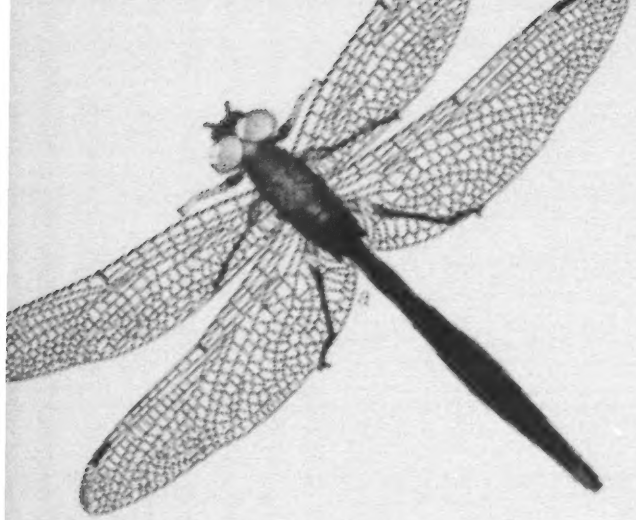


In this part of the Annual Report we report on a number of policy developments relating to at-risk species listed under the *Endangered Species Act, 2007* (*ESA*). The *ESA* is the cornerstone of species at risk protection in Ontario and has three purposes: 1) to identify species at risk; 2) to protect species at risk and their habitats, and promote species recovery; and 3) to promote stewardship activities to assist in the protection and recovery of species at risk.

Species determined to be at risk in Ontario are classified as: special concern, threatened, endangered or extirpated. Once a species is listed under the *ESA*, a recovery strategy (for endangered and threatened species) or management plan (for some special concern species) must be prepared. Once the plan or strategy has been prepared, the Ministry of Natural Resources and Forestry has nine months to produce a response statement summarizing the actions the Ontario government intends to take to protect and recover the species. In this part of the Annual Report, the ECO reports on new government response statements for 13 species.

The *ESA* also establishes certain protections for threatened, endangered and extirpated species. Specifically, section 9 prohibits killing, harming, harassing, capturing or taking a live member of a species listed as extirpated, endangered or threatened, as well as activities such as possessing, transporting, collecting, buying and selling those species. Here, we review guidance material on what it means to "harm" or "harass" a species at risk. Additionally, section 10 prohibits damaging or destroying the habitat of a species listed as endangered or threatened. Here, the ECO here examines five new species-specific habitat definitions.

Finally, we review two policies that have particular importance to two at-risk species. First, the *Range Management Policy in Support of Woodland Caribou Conservation and Recovery* relates to some of the actions set out in the woodland caribou government response statement. Second, changes to the regulation of milkweed are intended to encourage new growth of this critical food source for the monarch butterfly – a special concern species.



5.1 Government Response Statements: No New Action

The listing of a species at risk under the *Endangered Species Act, 2007* (*ESA*) is just the beginning of a process that will – when backed up with suitable expertise, resources and commitment – ensure its long-term protection and restoration in Ontario. One of the most important components of the *ESA* framework is the government response statement to a recovery strategy or management plan for a species at risk ("response statement"). A response statement outlines the actions and priorities that the government as a whole will take to protect and recover a species at risk. Under the Act, the Ministry of Natural Resources and Forestry (MNRF) must define the specific actions that the government will undertake to protect a species based on feasibility and socio-economic factors. The actions contained in a response statement can directly influence whether a species population will remain as is, improve or become further imperilled in the future.

In April and December 2014, the MNRF finalized response statements for the following 13 species:

- American columbo (*Frasera caroliniensis*), an endangered wildflower;
- beluga (*Delphinapterus leucas*), a whale species of special concern;
- bird's-foot violet (*Viola pedata*), an endangered plant;
- black tern (*Chlidonias niger*), a bird species of special concern;
- broad beech fern (*Phegopteris hexagonoptera*), a plant species of special concern;
- green dragon (*Arisaema dracontium*), a plant species of special concern;
- northern madtom (*Noturus stigmosus*), an endangered catfish species;
- pugnose shiner (*Notropis anogenus*), a threatened minnow species;
- Shumard oak (*Quercus shumardii*), a tree species of special concern;
- slender bush-clover (*Lespedeza virginica*), an endangered plant;
- Virginia goat's-rue (*Tephrosia virginiana*), an endangered plant;
- West Virginia white (*Pieris virginiensis*), a butterfly species of special concern; and
- willowleaf aster (*Symphyotrichum praealtum*), an endangered wildflower.

The ministry also gave notice that it required more time to prepare response statements for the endangered American eel (*Anguilla rostrata*) and the threatened wolverine (*Gulo gulo*). These response statements were due in August 2014.

BIRD'S FOOT VIOLET

The bird's foot violet is an herbaceous perennial with purple petals and leaves that resemble the toes of a bird. It favours dry, open, sandy sites, including oak savannas and prairies. The range for this plant extends from southern Ontario to Texas. Only five populations remain in southwestern Ontario and the largest population, with a total of 6,500 plants, is located within Turkey Point Provincial Park and St. Williams Conservation Reserve. The other 4 populations are located on private lands, and 3 of those populations consist of fewer than 10 plants. The species is listed as endangered in Ontario. Threats to its survival are fire suppression, habitat loss, trampling and recreational pressures, erosion and invasive species.

Government Response Statements

The ministry response statements for the 13 species at risk share a similar layout, which includes a recovery or management goal and a series of actions. The management goal within each response statement is typically to maintain and, in some cases, improve the current population.

Actions are divided into those that are "government-led" and those that are "government-supported." Government-led actions are activities that the government will undertake directly. Government-supported actions are activities endorsed by the government as being necessary for the species' protection and management, but do not identify who is responsible for implementing them. The MNRF stated that it may provide support, such as funding and advisory services, to conservation agencies, municipalities, industry partners and Aboriginal communities to undertake government-supported actions.

Government-led Actions:

All of the response statements included a government-led action to encourage the submission of data to the ministry's central repository at the Natural Heritage Information Centre. The Centre manages data about the location of species of conservation concern, plant communities, wildlife concentration areas and natural areas in Ontario. The government also committed to the following actions for all the species, except the beluga: to undertake communication and outreach to increase public awareness of species at risk in Ontario; and to continue to implement the *Ontario Invasive Species Strategic Plan* to address the invasive species that threaten the species at risk.

The government committed to additional actions for the threatened and endangered species, such as protecting the species and their habitats through the *ESA*. Likewise, response statements for all the species of special concern, except the beluga, included similar government-led actions, such as encouraging municipalities to identify the habitats of the species as significant woodland and/or significant wildlife habitat under the *Provincial Policy Statement, 2014*.

For the beluga, the government committed to a number of additional actions, including working co-operatively with other governments and agencies regarding the protection of some important estuarine summer habitat areas outside of Ontario's jurisdiction. The government also said that it would continue to work jointly with First Nations to develop community-based land use plans in the Far North of Ontario.

The bird's foot violet and Virginia goat's-rue response statements included additional government-led actions. One of these actions was for the government to continue to undertake ecosystem enhancement activities, such as prescribed burning and invasive species control within Turkey Point Provincial Park, as resources permit. In addition, the response statement for the pugnose shiner included a government-led action to develop a population and distribution monitoring protocol.

Government-supported Actions:

Most of the response statements included government-supported actions for: implementing a standardized population and habitat monitoring program; implementing best management practices; conducting habitat rehabilitation; conducting research on threats to species and on viable population sizes of the species; and promoting awareness among landowners about the species. In general, these actions align with recommendations in the recovery strategies and management plans. For example, the West Virginia white management plan and response statement both contain an action to secure habitat of key sites through land acquisitions.

Photo credit - Randy L. Emmitt (right)

However, there are a number of protection and management actions that were recommended in management plans or recovery strategies that the ministry did not address in the corresponding response statements. For example, the beluga management plan states that it is critically necessary to protect the whale's significant estuarine summer habitat within Ontario, but the response statement only included actions to consider its conservation.

WEST VIRGINIA WHITE

The West Virginia white is a forest-dwelling butterfly that is listed as a species of special concern in Ontario. This butterfly occurs in eastern North America, from Quebec to northwestern Alabama. In Ontario, observations since 2002 have been clustered in Halton Region, Manitoulin Island, Leeds and Grenville and Frontenac counties, central Peterborough County, and along the shoreline of Lake Superior/St. Joseph Island. There is no population estimate for the West Virginia white in Ontario. Major threats to the species' survival include the loss and fragmentation of woodlands in Ontario and the spread of garlic mustard (*Alliaria petiolata*), which is mistakenly eaten by newly hatched caterpillars, causing death. Other threats include urban development and climate change.

IMPLICATIONS OF THE DECISION

Weak, Status Quo Protection and Management

The new response statements suggest that the MNRF will do little more than what it was previously doing to manage these species at risk. Indeed, most of the government-led protection and management actions are already required by law or under existing policies or programs. For instance, statements that the government will "continu[e] to implement the *Ontario Invasive Species Strategic Plan*" will not provide any new protection for, or management of, these species.

Similarly, while the response statement for beluga includes actions to "consider" the conservation of important beluga summer estuarine habitat in Ontario through the Far North planning process, as well as to work with other jurisdictions to protect summer habitat outside of Ontario, it does not include any new action to specifically identify and protect this habitat within Ontario.

Little Ministry Involvement in Inventorying, Monitoring and Research

In general, the government did not commit to any new involvement in inventorying, monitoring or conducting research for these species at risk. Nearly all of the government-led actions simply reiterate the ministry's existing obligations or recovery actions already underway. The only government-led action that may be considered new is the commitment to develop a pugnose shiner population and distribution monitoring protocol.

Reliance on Unidentified Third Parties for Management Actions

The many government-supported actions that are intended to address specific threats to the species at risk will only be implemented if unspecified third parties step up. For example, response statements include government-supported actions to address data gaps and monitoring protocol deficiencies, but these actions rely on third parties for implementation. In our 2010/2011 Annual Report, the ECO raised this concern regarding the reliance on third parties to undertake on-the-ground protection and recovery efforts.

Difficult to Measure Success

The *ESA* does not require a five-year progress review for species of special concern (as it does for endangered and threatened species). It is, therefore, unknown if the ministry will ever review its progress toward the protection and recovery of species of special concern. Even if the ministry does review progress, the response state-

ments do not include any population recovery targets or timelines against which to measure the success of the actions. In our 2010/2011 Annual Report, the ECO raised this concern and encouraged the government to set measurable targets for species recovery when possible.

Government-led Actions are not Prioritized

The ministry assigned high, medium or low priority to all government-supported actions in the response statements for species of special concern, but it failed to prioritize the government-led actions. In the response statements for threatened and endangered species, the ministry only identified government-supported actions that are high priority; it did not prioritize any other actions within these response statements. The *ESA* specifically requires that the ministry prioritize government actions in a response statement.

Delayed Protection

The *ESA* requires that the ministry publish a response statement within nine months after a management plan or recovery strategy is prepared. The ministry missed its legislative deadline for preparing recovery strategies and response statements for the endangered and threatened species by approximately four months. Such delays have the practical effect of stalling protection and recovery efforts; for some species at risk, such delays in taking action could have significant consequences. The ECO raised a similar concern in our Special Report, *Laying Siege to the Last Line of Defence: A Review of Ontario's Weakened Protections for Species at Risk, 2013* noting that nearly half of the recovery strategies had been delayed, which in turn held up the preparation of response statements.

PUGNOSE SHINER

The pugnose shiner is a small, slender minnow with a blunt snout and small, upturned mouth. The minnow is considered globally rare and has a limited distribution in North America, including the upper Mississippi River, the Red River and the Great Lakes basin. In Canada, it can be found in the southern drainage of Lake Huron, Lake St. Clair, Lake Erie, Lake Ontario and the St. Lawrence River. The minnow requires shallow, densely vegetated waters for spawning because its embryos are sensitive to light. Adults are typically found in clear waters of streams, lakes and bays with slow currents and vegetation. The species is listed as threatened in Ontario. Threats to its survival include habitat modifications, aquatic vegetation removal, sediment loading and turbidity, nutrient loading, invasive species, baitfish harvesting, changes in the fish community and climate change.

ECO COMMENT

One of the most critical steps in the *ESA* process is the preparation and publication of the government response statement: it should articulate what actions the Ontario government will (and, ideally, will not) take for the protection and recovery of species at risk. It is at this stage that the government considers social and economic factors in deciding what actions are feasible, as well as clearly identifying the help needed by others outside of government. It should be a frank and honest plan that ideally works toward making the species (and its habitat) secure enough so that it is no longer in peril.

Again, the ECO is disappointed to report that government response statements for species at risk are inadequate. The government committed to little, if anything, beyond what would have been done irrespective of the *ESA*. As a result, the conditions that contributed to the species being listed as special concern, threatened or endangered in the first place are unlikely to improve as a result of the actions set out in the government response statements. The ECO's past concerns persist: government response statements for species at risk continue to be vague and weak, and simply reiterate existing responsibilities under government policies and programs. Although some of the response statements' overall recovery and management goals aim to improve the species' population levels, it is unclear how this will be achieved without taking any new concerted action.

Protecting imperilled species is a shared responsibility. However, the MNRF is the lead government ministry responsible for species at risk and it must demonstrate some on-the-ground leadership. Instead, the ministry is reinforcing the impression that it is largely a passive bystander when it comes to taking some measure of substantive action for species at risk. The MNRF is missing an important opportunity to implement practical and innovative actions to address specific threats to these species. For example, the response statement could have included commitments to secure key habitat of species at risk through land acquisition. For beluga, the government could have pledged to identify and protect key summer habitat (estuaries) within Ontario. Instead, these actions are left to unspecified third parties to undertake (or not), or left unaddressed altogether. The government's ultimate goal should be to take actions to improve the species' at-risk status and, therefore, no longer require the attention of the *ESA*.

The legislative framework of the *ESA* is sound in principle: first, independent assessment and classification of species; then science-based recovery strategies and management plans; the government then responds with response statements that outline protection and recovery actions that consider social and economic factors; and finally implementation of the actions in the response statement that are feasible and within the responsibility of the Minister. Each of these steps is dependent on its preceding step. If one step is weak or broken, the whole system fails. Response statements are one of the important final steps in the framework for protecting and recovering species under the *ESA*. The ministry's continued failure to prepare meaningful response statements threatens the entire process and, in turn, all species at risk in Ontario.

For a more detailed review of this decision, please refer to Section 1.3.5 of the Supplement to this Annual Report.

Comments from the MNRF

The protection and recovery of species at risk is a shared responsibility. Where possible, MNRF integrates the implementation of government-led recovery actions within the delivery of existing MNRF programs to effectively and efficiently achieve progress towards protection and recovery for more species at risk and prevent other elements of biodiversity from becoming at risk. MNRF demonstrates leadership in the implementation of the government-supported recovery actions listed in the response statements through the provision of funding, advice, agreements and permits with appropriate conditions. This includes providing $5 million a year to external parties through the Species at Risk Stewardship Fund which leverages more than $5 million a year in additional matching funds. This funding targets the implementation of prioritized actions that contribute towards the protection and recovery of species at risk.

All species at risk have unique recovery needs depending on their biology, the history of their circumstances and threats in Ontario, the level of knowledge that exists about them, and the opportunities that exist to address the threats. MNRF prioritizes protection and recovery direction and actions based on the individual species needs and implementation pressures.

Photo credits - Fritz Flohr Reynolds (left) and Daniel J. Layton (right)

5.2 Harm and Harass Policy: Unclear Permitting

One of the key ways that Ontario's *Endangered Species Act, 2007* (*ESA*) is intended to protect the province's species at risk is by prohibiting the killing, harming or harassing of a member of an extirpated, endangered or threatened species. This prohibition in section 9(1)(a) of the Act is subject to certain exceptions that authorize a proponent to kill, harm or harass provided they first obtain an authorization (e.g., permit or agreement) or register a notice of activity with the government and comply with certain conditions.

Despite its importance to the *ESA* framework, until recently there was no formal guidance to support the application of the section 9(1)(a) prohibition; in fact, there was not even a clear definition of what "harm" or "harass" means.

The Harm and Harass Policy

In August 2014, the Ministry of Natural Resources and Forestry (MNRF) finalized *Policy Guidance on Harm and Harass under the Endangered Species Act* (the "Policy"). The purpose of the Policy is to "outline the overall approach and considerations that the Ministry or a proponent will use in determining whether a proposed activity is likely to kill, harm or harass a member of a protected species under clause 9(1)(a) of the ESA." The Policy states that "this determination will be carried out primarily in the context of determining whether it is advisable for the proponent to apply for an authorization (e.g., permit) or register a notice of activity under the Act prior to proceeding with the activity."

However, the Policy "first and foremost" encourages proponents to look for opportunities to carry out their activities without causing adverse effects on species at risk or their habitat. It also provides examples of potential alternative approaches, such as changing the timing, methodology or location of an activity to avoid causing adverse effects on a protected species.

CAREFULLY CHOSEN WORDS

Unlike the prohibitions in some other environmental statutes, section 9(1)(a) of the *Endangered Species Act (ESA)* does not prohibit activities that may kill, harm or harass; it only prohibits *actual* killing, harm or harassment. Therefore, a proponent is not technically required to have authorization in order to undertake any activity, even if the activity is *likely* to kill, harm or harass. However, a proponent who proceeds with an activity and *actually* kills, harms or harasses without authorization would be in contravention of section 9(1)(a).

The Ministry of Natural Resources and Forestry takes the carefully worded position that if an activity is "likely" to kill, harm or harass, it is "advisable" for the proponent to apply for a permit or register the activity prior to proceeding. If the anticipated killing, harm or harassment does in fact ensue as a result of the activity (then – and only then – triggering the section 9(1)(a) prohibition), the proponent who has obtained prior authorization would not be exposed to potential prosecution.

The Policy explains key terms used in the section 9(1)(a) prohibition. In particular:

Harm – "An activity that harms a living member of a protected species is one that results in a physical injury, or change to one or more of its physiological processes, and adversely affects the ability of the member to carry out one or more of its life processes."

Harass – "An activity that harasses a living member of a protected species is one that disrupts its normal behaviour in a manner that adversely affects the ability of the member to carry out one or more of its life processes."

Terms such as "activity," "life processes," "indirect effects," and "delayed effects" are also defined.

The Policy sets out the following six guiding principles to be considered when assessing a proposed activity's likelihood of killing, harming or harassing a member of a protected species:

1. species protection and recovery;
2. uncertainty and risk management;
3. adaptive management;
4. presence of a species;
5. case-by-case determinations; and
6. ecological relationships.

The Policy also establishes a framework for evaluating whether a proposed activity is likely to kill, harm or harass a protected species. The framework involves making two key determinations: (1) the likelihood that an anticipated effect on a protected species will occur, based on the activity details; and (2) the severity of the effect on the species, based on biological factors (see Table 5.2.1).

Table 5.2.1. Considerations in Determining the Likelihood of Killing, Harming or Harassing a Member of an At-risk Species (Source: Based on MNRF, *Policy Guidance on Harm and Harass under the Endangered Species Act*, August 2014).

Key Activity-Related Details (Likelihood)	Key Biological Factors (Severity)
Proximity to species	Site fidelity
Timing	Concentration of individuals
Intensity	Mobility
Duration and persistence of effects	Ecological sensitivities
Frequency	Current condition
Permanency	Life stage
	Response to disturbance

The framework includes a short explanation for each of the activity-related details and biological factors, including some advice regarding circumstances in which, generally, there will be a greater risk that the activity will kill, harm or harass. The MNRF notes that both the activity details and biological factors are to be considered collectively, not in isolation, and that not all activity details or biological factors will be relevant in every case.

In the case of activity details, the ministry advises that "consideration of direct and indirect effects and immediate and delayed effects of an activity are important when evaluating the activity-related details." All components of an activity (i.e., components associated with site access and investigation, site preparation and construction, operation and maintenance, closure, decommissioning and completion, and rehabilitation and restoration stages) should be considered.

Finally, the Policy recognizes that cumulative effects of other human activities and natural events may intensify the effects of a proposed activity on a protected species.

The likelihood and severity of the effects of the activity are to be evaluated on a continuum in order to determine whether the proposed activity is likely to kill, harm or harass. As the likelihood and severity of the effects both increase, so does the likelihood that an activity will kill, harm or harass a protected species (see Figure 5.2.1).

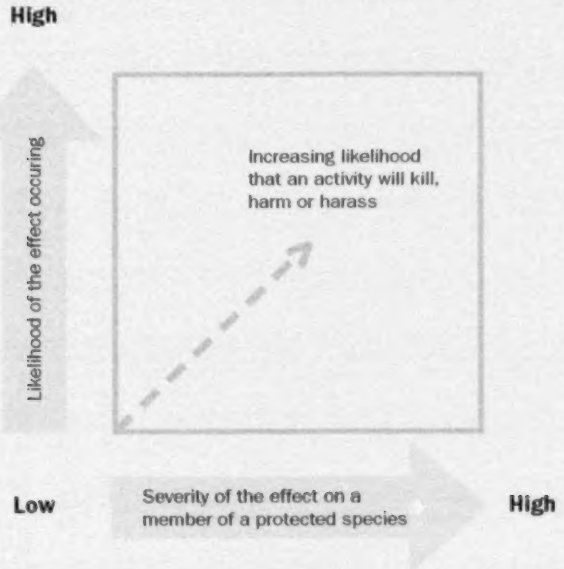

High
Likelihood of the effect occuring
Increasing likelihood that an activity will kill, harm or harass
Low
Severity of the effect on a member of a protected species
High

Figure 5.2.1. Diagram representing the MNRF's approach to determining whether an activity is likely to kill, harm or harass a protected species (Based on MNRF, *Policy Guidance on Harm and Harass under the Endangered Species Act*, August 2014).

IMPLICATIONS OF THE DECISION

Terms and Intent are Clarified

The definitions of key terms provide important guidance for determining whether an activity would, in fact, contravene section 9(1)(a) of the *ESA*. The clarification of the meaning and scope of the terms "harm" and "harass" is particularly helpful; before this guidance was released, it was not clear that, to be considered harmful or harassing, an activity must adversely affect the ability of the member of a protected species to carry out one or more of its life processes. The direction that an assessment of an activity must include consideration of all components of the activity, as well as any indirect or delayed effects, is also of key importance.

Similarly, the guiding principles provide helpful clarification – for example, that determinations should include consideration of ecological relationships, and should generally err on the side of caution in the face of uncertainty about potential effects of an activity. Perhaps most significantly, the Policy confirms that assessments are to be made on a case-by-case basis.

Finally, the lists of activity details and biological factors to be used to evaluate the likelihood and severity of potential effects of an activity create a baseline of information that, if relevant, must be considered in every assessment. The explanations of those details and factors enhance this guidance.

Together, the clarification of key terms, guiding principles and lists of details and factors should support a level

Photo credit - Divya Thakur (right)

of consistency in assessing activities that was not possible before this Policy was released. The guidance will also help proponents and ministry staff demonstrate their reasoning for arriving at a particular decision regarding an activity.

Uncertainty, Inconsistencies will Persist Nevertheless

While the Policy should improve the ability of proponents and ministry staff to determine whether a proposed activity is likely to kill, harm or harass protected species, the MNRF's framework nevertheless remains open to broad interpretation.

There is little guidance on how to identify or consider direct, indirect, immediate and delayed effects when evaluating activity-related details. There is also no real guidance about how to incorporate additional considerations, such as ecological relationships or cumulative effects, into the analysis. In essence, the Policy merely lists factors and details to consider on a case-by-case basis. The process of assessing an activity remains largely subjective, and will likely lead to inconsistencies between assessments.

Most importantly, there is little practical advice for determining where to place a proposed activity on the continuum (essentially a sliding scale of low to high risk of harm), or how to interpret the result. This is probably the greatest source of uncertainty in the Policy (see the next subsection for further discussion of this problem).

Following this guidance may not provide sufficient certainty for proponents. If a proponent assesses an activity in accordance with the Policy and concludes in good faith that a permit or registration is not advisable, but – contrary to expectations – the activity harms or harasses a member of a protected species, the proponent could be prosecuted. This uncertainty may lead some proponents, out of an abundance of caution, to seek permits or register activities even in cases where the likelihood of harm is negligible.

Threshold for Seeking Authorization is Undefined

It is clear that proponents of activities that are certain to kill, harm or harass should obtain a permit or register the activities to avoid contravening the *ESA* (or, better yet, choose not to undertake the activity at all). However, it is implicit in the Policy that there is some lower level of risk of harm to a protected species that does not warrant seeking a permit or registration; otherwise, the Policy's continuum for likelihood and severity of adverse effects would be unnecessary. It is only when the likelihood of harm reaches some undefined threshold that it will become advisable for proponents to obtain a permit or register an activity.

Unfortunately, the MNRF does not clearly articulate the existence of this threshold, or explain what the threshold is. This latter omission is likely because it would be extremely difficult to identify a single level of risk that would address the specific circumstances of all endangered and threatened species. However, some guidance is necessary to help proponents identify that threshold on a case-by-case, species-by-species basis. Without this direction, proponents are unable to confidently interpret the significance of an activity's position on the continuum – or, more to the point, conclude whether they should apply for a permit or register a notice of activity.

ECO COMMENT

The ECO recognizes that developing a methodology for predicting a future outcome can be challenging. Developing this Policy was likely a difficult task for the MNRF, given the case-by-case nature of predicting the effects of a specific activity on a particular species at a given location. In this context, the ECO is pleased that the MNRF has finally released some guidance on how to make these determinations. It is also encouraging that the MNRF emphasizes, above all, avoidance of harm by considering alternatives to activities that cause adverse effects on species at risk or their habitats.

Unfortunately, however, the guidance falls short in terms of practical application. While a determination of whether an activity is likely to harm or harass a protected species may ultimately be species- and case-specific, the MNRF could have provided more detailed direction on how to rank an activity's likely effects and the severity of those effects on the continuum – and how to interpret the result. The Policy should also provide more guidance on how to incorporate considerations, such as ecological relationships and cumulative effects, into the analysis. Examples of activities that have been evaluated using the Policy's approach would have been helpful. It would have been even more instructive to include sample evaluations showing, step-by-step, how the Policy framework is intended to function.

The MNRF has made a legitimate policy decision that activities with a lower level of risk may proceed without seeking authorization or registration (although proponents continue to bear a risk of prosecution if harm or harassment does in fact occur). However, what that level of risk is remains unclear. The ministry should have been explicit that such a threshold exists and explained its rationale for taking that approach. And while defining one specific threshold for all species may not be realistic, the MNRF could explain to proponents – at least qualitatively – how to determine what the threshold is on a case-by-case basis. Ideally, the ministry would establish a relatively low threshold by recommending that a proponent obtain a permit or register when there is any reasonable likelihood of harming, harassing or killing. Not only would this impose obligations and restrictions on more proponents to protect the species in question (as well as provide certainty for proponents that they will not be contravening the *ESA* if, in fact, they kill, harm or harass a member of a protected species), but it would enable the ministry to maintain oversight of most potentially risky activities so that it may enforce the *ESA* and its regulations if necessary.

Given the species-specific nature of applying this *ESA* prohibition, the MNRF should do everything it can to supply proponents with information about protected species that may be affected by a proposed activity. A starting point would be to include, in government response statements for endangered and threatened species, guidance regarding types of activities the government would or would not consider to be likely to harm or harass members of a particular species. The MNRF already takes this approach in the context of the *ESA* prohibition of damaging or destroying habitat, by identifying, in Habitat Protection Summaries, activities that are generally compatible or not compatible with regulated habitat. While such species-specific guidance cannot realistically cover every conceivable activity (or address all site-specific circumstances), it would take some of the guesswork out of the process for proponents of many of the most common activities, and result in more consistent application of section 9(1)(a) in general.

For a more detailed review of this decision, please refer to Section 1.3.1 of the Supplement to this Annual Report.

Comments from the MNRF

The ESA provides automatic protection under s. 9 for species listed as extirpated, endangered or threatened. MNRF's Policy Guidance on Harm and Harass under the ESA provides a framework to determine whether an activity is likely to kill, harm or harass a member of a protected species. It provides guidance on the terms "kill", "harm" and "harass", providing greater clarity to proponents. The policy identifies a set of guiding principles and considerations to be used when assessing whether a proposed activity may kill, harm or harass a member of a protected species and describes the biological factors and activity details informing those assessments.

It is recognized there is uncertainty in the collective understanding about species at risk. The policy states that determinations of whether an activity is likely to kill, harm or harass a protected species will be based on the best available scientific information. Uncertainty, risk and adaptive management are key principles incorporated in the framework to ensure that as our knowledge and information about species at risk improve over time, future approaches, guidance and decisions for protecting species at risk will be adapted accordingly. This policy

is supported by other ESA policy guidance, including the process for activity review and assessment outlined in Endangered Species Act Submission Standards for Activity Review and 17(2)(c) Overall Benefit Permits.

5.3 Habitat Regulations: A Mixed Bag

Habitat Protection under the *ESA*

Habitat loss is one of the biggest threats to species at risk in Ontario and around the world. Accordingly, the *Endangered Species Act, 2007* (*ESA*) prohibits damaging or destroying the habitat of an endangered or threatened species, unless authorized under the Act (e.g., by a permit or through the rules-in-regulation system).

The *ESA* provides two definitions of "habitat." First, the habitat of a particular species may be defined in regulation (often referred to as a regulated habitat definition). Second, for endangered and threatened species without a regulated habitat definition, habitat is defined as "an area on which the species depends, directly or indirectly, to carry on its life processes, including life processes such as reproduction, rearing, hibernation, migration or feeding" (often referred to as the general habitat definition).

Regulated habitat definitions can offer many advantages over the general habitat definition, including greater specificity about the geographic areas and types of environments where habitat can be found. This makes it is easier for the Ministry of Natural Resources and Forestry (MNRF), the public and proponents to determine if a location is likely to be protected habitat.

The ministry may, but is not required to, prescribe habitat for species that were already listed as endangered or threatened when the *ESA* came into force in 2008. For species listed since then, the ministry must prepare habitat regulations within two or three years of listing an endangered or threatened species, respectively.

RESEARCH NEEDS IGNORED, REGULATIONS DELAYED

For species-specific regulations to be truly useful, they must be grounded in scientific information about the location of current, historical and potential future populations. Information about key habitat features must also be known. For example, knowing that a species prefers shallow water will not narrow the list of potential habitat areas as much as knowing that it requires a sandy bottom clear of vegetation.

Recently, the ECO has observed that some habitat regulations have been delayed because the Ministry of Natural Resources and Forestry (MNRF) does not have the information necessary to develop a regulated habitat definition. For example, in an August 2014 Environmental Registry notice (#012-2320), the ministry explained that the recovery strategy for the pygmy snaketail (*Ophiogomphus howei*, an endangered dragonfly) "identifies significant knowledge gaps and recommends that it would be premature to apply a habitat regulation for this species until more data is available." Accordingly, the MNRF decided to delay proposing a habitat regulation until such information is compiled.

Of greater concern than this initial delay, however, is that there was no announcement of a corresponding effort by the ministry to collect the information necessary to prepare a habitat regulation for the pygmy snaketail. Rather, it seems that the MNRF is content to wait indefinitely for new information to become available from some unidentified source. This is unacceptable; in order to fulfil its *ESA* obligation to develop habitat regulations, the ministry must be willing to ensure that the needed habitat research is carried out in a timely manner.

Habitat Regulations and Recovery Strategies

Under the *ESA*, recovery strategies must include recommendations on the area that should be considered in developing a habitat regulation and the Minister of Natural Resources and Forestry is required to consider the applicable recovery strategy and government response statement when making a habitat regulation. In addition, MNRF policy states that the government will also consider: the area protected under the general definition of habitat; the best available scientific information on the species; and the social and economic implications of habitat regulation.

New Habitat Regulations for Five Species

On January 1, 2015, the MNRF amended O. Reg. 242/08 (General) under the *ESA* to define habitat for the following species:

- eastern sand darter (*Ammocrypta pellucida*), an endangered fish;
- Hine's emerald (*Somatochlora hineana*), an endangered insect (dragonfly);
- Hungerford's crawling water beetle (*Brychius hungerfordi*), an endangered insect;
- Pitcher's thistle (*Cirsium pitcheri*), a threatened plant; and
- wavy-rayed lampmussel (*Lampsilis fasciola*), a threatened mollusc.

The key aspects of these new regulated habitat definitions include:

- Geographic restrictions – habitat is limited to specific municipalities and waterbodies and, sometimes, specifically excludes certain areas;
- Specific habitat features and uses – habitat is defined in reference to certain environmental features and/or species uses;
- Historical habitat – some areas that have been occupied by the species in the past, but are not currently occupied; and
- Buffer zones – protection, in varying forms, for areas in close proximity to primary use areas.

IMPLICATIONS OF THE DECISION

Gains and Losses in Scope of Protection

Relative to the general habitat definition, the areas protected under the new regulation are broader in some respects, but narrower in others. The potential implications of the shift to regulated habitat definitions are set out below. However, it can be difficult to predict the impacts of these changes on species at risk because of knowledge gaps regarding species' distribution, habitat needs and other ecological requirements.

New Protection for Historical Habitat

The new regulated habitat definitions all include some historical habitat. In some cases, this includes habitat occupied at any time in the past and, in other cases, it includes only habitat occupied within the last few years. This allowance could provide species the space to re-establish themselves within ideal habitat environments.

New Protection for Buffer Zones

The new regulatory provisions protect buffer zones around areas that are, or have been, used by the species. For example, some areas near locations used by the wavy-rayed lampmussel are also considered habitat. Protecting buffer zones could allow populations room to grow, and helps ensure that primary use areas are not damaged by nearby activities.

Narrowed Protection Based on Geographic Area

The regulated habitat definitions are each limited to specific geographic areas. Generally, this does not exclude areas where the species is known to occur. However, for two species there is reason to believe that undocumented populations may occur outside of the defined geographic areas. An eastern sand darter population was iden-

tified in 2013 far away from previously known habitat locations, suggesting other populations may also exist elsewhere. Additionally, the recovery strategy for the Hine's emerald dragonfly notes that "there is a high likelihood of extant Hine's emerald populations at least at some of 28 locations identified [by the Committee on the Status of Endangered Wildlife in Canada] as having appropriate habitat." Many of these locations are outside the geographic areas in the habitat regulation. If populations of these species are discovered outside the areas listed in the regulation, amendments will be required before those habitats are protected.

Narrowed Protection Based on Habitat Features and Uses

The new regulatory provisions all define habitat in reference to certain environmental features and/or particular uses. In some cases, these clauses merely specify the environments the species tends to inhabit and, thus, are unlikely to exclude any areas where the species occurs. In other cases, however, such restrictions may exclude areas that were included in the general habitat definition. For example, Pitcher's thistle habitat is restricted in part to sand dunes with less than 25 per cent tree cover (and associated buffer areas). Although the recovery strategy says that Pitcher's thistle prefers open dune habitat, there is no mention of the 25 per cent threshold. The ministry offered no explanation for why it decided to restrict the habitat definition in this way.

Consideration of Recovery Strategy Recommendations

The habitat recommendations set out in each species' recovery strategy vary widely. In some cases, the recommendation is only that the Minister consider the approach used to identify critical habitat; in other cases, there is a detailed description of what areas and features should be considered. The Minister is not required or expected to follow all recovery strategy habitat recommendations when making the habitat regulation. However, these recommendations offer important insight on the best available scientific information about a species' habitat protection needs.

Photo credit - Fritz Flohr Reynolds (left)

There are several recommendations in the recovery strategies for Hungerford's crawling water beetle, Pitcher's thistle and Hine's emerald that are not incorporated into the species' habitat definition. Most significantly, the regulation does not incorporate the recommendation that the Snow Valley Uplands areas be prescribed as part of Hine's emerald habitat. The recovery strategy explains that this area is critical to maintaining groundwater flow to the wetland area inhabited by the Hine's emerald dragonfly. Despite this, the regulatory habitat definition only includes a small portion of the Snow Valley Uplands areas.

ECO COMMENT

Overall, the areas inhabited by known populations of eastern sand darter, Hine's emerald, Hungerford's crawling water beetle, Pitcher's thistle and wavy-rayed lampmussel are better protected by their regulatory habitat definitions than they were by the general habitat definition.

One advantage of regulated habitat definitions is that the geographic area restrictions offer specificity about

where a species might be present, providing some certainty to both the MNRF and proponents. However, when there is good reason to believe that populations exist outside of the geographic area defined in regulation – as with eastern sand darter and the Hine's emerald – this approach leaves the habitat of any such populations without protection, and potentially misleads stakeholders about where the species might be present. While it is the MNRF's stated practice to amend habitat regulations as needed to address newly discovered habitat, this takes time during which habitat could be lost. For this reason, the ECO suggests that, for species believed to have undocumented populations outside of the regulated habitat areas, the ministry include a clause protecting other, outside areas relied upon for life processes by the species.

In the case of Hine's emerald, the failure to protect the Snow Valley Uplands areas is troubling. The importance of such protection was explained and expressly recommended in the species' recovery strategy. The MNRF's decision is particularly disconcerting because the Snow Valley Uplands are under pressure from development, as noted in the recovery strategy. This makes protecting the area all the more important, although possibly more controversial. Given the specificity of this recommendation in the recovery strategy, and with no explanation of the ministry's decision provided, the ECO concludes that the MNRF opted to favour development, rather than to prioritize the protection of this species at risk habitat.

The ECO is pleased with the MNRF's effort to identify stakeholders in this decision and to directly engage with them by: placing notices in local papers; alerting local governments and organizations; and sending letters to landowners identified as possibly having species at risk habitat on their properties. Despite this effort, however, many of the Environmental Registry comments indicated serious misunderstandings about how habitat regulations operate and what types of activities are prohibited in regulated habitat. These misconceptions could be partially addressed through a more comprehensive Registry proposal notice. The notice should have explained the relationship between recovery strategies, government response statements and habitat regulations, as well as provided an overview of how the habitat regulation interacts with the section 10 prohibition on damaging or destroying habitat. Furthermore, hosting consultation meetings in communities with a significant interest (in this case, the area affected by the Hine's emerald provision), would likely improve public understanding of the proposal and also present an opportunity to engage community members in the protection of species at risk.

For a more detailed review of this decision, please refer to Section 1.3.8 of the Supplement to this Annual Report.

Comments from the MNRF

MNRF recognizes the importance of clearly describing the habitat protected for a species to facilitate the effective implementation of protection. These habitat regulations protect the areas that are necessary for the protection and recovery of the five species at risk in a way that is practical and reasonable to implement.

The inclusion of information in habitat regulations about where they apply provides increased certainty and clarity for the public. These areas include locations where the species is likely to expand or be found due to increased survey effort. MNRF remains committed to updating regulations as necessary to incorporate new occurrence information.

Although the regulation for Hine's Emerald does not include all of Snow Valley Uplands, it does include a 500 m area around the habitat used by the species. This area helps to protect the flow of groundwater into the wetlands and aquatic areas used by the species. In addition, if activities outside this area are likely to have an adverse effect on the habitat they may still require authorization under the Endangered Species Act to consider the needs of the species.

5.4 Caribou Range Management Policy: The Government Won't Say No

The woodland caribou (*Rangifer tarandus caribou*) is an iconic Canadian species and an important part of the boreal forest ecosystem. Once widespread in the province, expansion of human settlement and development has contributed to the loss of as much as 40 to 50 per cent of the historical area of caribou distribution since the mid-1800s. Ontario's forest-dwelling boreal population of woodland caribou ("caribou") is listed as threatened under the *Endangered Species Act, 2007* (*ESA*) and forms part of the threatened boreal population under the federal *Species at Risk Act*.

Caribou require large tracts of habitat and prefer mature, undisturbed coniferous forest or peatlands mixed with hilly or upland areas. They generally avoid areas of younger, recently disturbed forest, which provide them with little food and are favoured by other species that attract predators like wolves and black bears. Caribou also have specific habitat requirements for calving and post-calving periods. Females generally travel to isolated areas with abundant food (e.g., lichens) to calve, and often return to these same areas over and over. In addition to the condition of habitat itself, connectivity within and between habitat areas is important to seasonal movement, disturbance avoidance and genetic exchange.

The loss, degradation and fragmentation of habitat are serious threats to caribou. Natural events (such as forest fires and forest blowdowns) and human activities (such as forestry, mining, oil and gas exploration and development, hydro-electric development and tourism) can contribute to cumulative habitat disturbance. Such disturbances not only cause direct physical loss of habitat, but also indirectly threaten caribou by increasing predation pressure. Because caribou have relatively low reproductive rates, it is difficult for populations to recover from substantial population declines.

A "range" is the broad geographic area used by a caribou population that provides both present and future habitat. According to Environment Canada, maintaining 65 per cent undisturbed habitat in a range provides a 60 per cent probability that a local caribou population will be self-sustaining.

In December 2014, the Ministry of Natural Resources and Forestry (MNRF) released its *Range Management Policy in Support of Woodland Caribou Conservation and Recovery* ("Range Management Policy"). The policy explains how the MNRF will consider the condition of woodland caribou (forest-dwelling boreal population) ranges when assessing and authorizing specific activities, as well as in broader planning and decision-making processes. The policy seeks to manage species habitat and disturbances in order to support self-sustaining caribou populations. In circumstances where the MNRF is not the approval authority for an activity within a caribou range, the Range Management Policy will act as the basis for any advice provided by the MNRF to the authorizing agency.

Photo credit - MNRF

Protection under the *Endangered Species Act, 2007*

The *ESA* prohibits killing, harming and harassing caribou, as well as damaging or destroying its habitat, except in accordance with an authorization from the MNRF. An *ESA* authorization generally takes the form of an overall benefit permit; however, certain activities, such as commercial forestry operations, may qualify for exemptions that allow proponents to follow rules set out in regulation instead of obtaining a permit.

Ontario's Woodland Caribou Conservation Plan

In 2009, the Ontario government released *Ontario's Woodland Caribou Conservation Plan* ("Conservation Plan"), which outlines the Ontario government's intended actions to protect and recover caribou. Its goal is to:

> maintain self-sustaining, genetically-connected local populations of Woodland Caribou (forest-dwelling boreal population) where they currently exist, improve security and connections among isolated mainland local populations, and facilitate the return of caribou to strategic areas near their current extent of occurrence.

The Conservation Plan commits the Ontario government to adopt a "Range Management Approach," in which the management of discrete ranges serves as the ecological context for planning and management decisions. The plan states that Ontario will establish "range-specific population-based objectives (e.g. population health measures)," and that achieving these objectives "will require that all management decisions reflect and stay within known thresholds of range-level disturbance (human and natural)." For more information on the Conservation Plan, see Part 3.5 of the ECO's 2009/2010 Annual Report.

The Range Management Policy

The Range Management Policy describes how the MNRF intends to implement a Range Management Approach in order to achieve Ontario's caribou conservation goal. Under the policy, ranges are the geographic and ecological basis for evaluating caribou habitat and populations, as well as for managing cumulative effects.

The policy sets out a four-stage process: (1) delineating caribou ranges; (2) conducting an integrated range assessment and documenting range condition for each range; (3) integrating the Range Management Policy into planning and decision making (e.g., authorizing activities within caribou ranges); and (4) monitoring, evaluating and reporting on the effectiveness of policy implementation. The MNRF began to implement these steps concurrently with the release of the Range Management Policy.

Beforehand, the MNRF had conducted monitoring of caribou across the continuous distribution between 2008 and 2013, including: two-stage winter distribution surveys; recruitment surveys; GPS collar deployment; and collecting genetic material.

The Range Management Policy states that caribou conservation is achieved when a caribou population is stable or increasing and range condition is considered sufficient to sustain caribou. As such, the overall objective of the policy is "to maintain or move towards a sufficient range condition in all caribou ranges in Ontario." However, the policy only applies to the area of continuous distribution of woodland caribou, excluding the Lake Superior Coast Range (Figure 5.4.1).

Figure 5.4.1. Caribou ranges in Ontario (Source: *Range Management Policy in Support of Woodland Caribou Conservation and Recovery*, MNRF (2014)).

Range Delineation

Caribou are found across the boreal forest in an area known as the "continuous distribution," in which populations freely mix. The discrete population of caribou along the shore of Lake Superior and adjacent islands is considered to be part of the continuous distribution. Between these two regions is the area known as the "discontinuous distribution," where geographic or man-made barriers prevent populations from mixing freely. Caribou are not present in many areas of the discontinuous distribution. The MNRF subdivided the area of continuous distribution into 14 ranges (Figure 5.4.1). Local populations within a range are subject to similar demographic influences.

Integrated Range Assessment and Determination of Range Condition

The condition of each range is determined by evaluating a range's population size, population trend (i.e., increasing, stable or declining), habitat disturbance, and the amount and arrangement of habitat. The outcome of an integrated range assessment is a determination of range condition along a continuum that represents the

ability of a range to support a self-sustaining caribou population. Ranges may be categorized as either *sufficient* or *insufficient* to sustain caribou, or *uncertain* whether the condition is sufficient to sustain caribou. For example, ranges that are considered sufficient to sustain caribou would typically have a stable or increasing caribou population, low amounts of disturbance, and an amount and distribution of habitat consistent with the estimated natural condition.

The most recent integrated range assessments were published in December 2014. Of the 13 ranges covered by the Range Management Policy, 2 were assessed as *sufficient*, 2 were assessed as *insufficient*, and the remaining 9 ranges were categorized as *uncertain*.

Integrating Range Condition into Decision Making

The Range Management Policy states that the ministry will apply three principles in planning and decision making:

1. Ranges will be managed such that the amount of cumulative disturbance remains at or moves towards a level that supports a self-sustaining caribou population.
2. The amount and arrangement of habitat within a range will be managed consistent with the level that has been estimated to occur in natural landscapes.
3. Within a range, forest composition, pattern and structure will be managed to promote the maintenance of the ecological function of sub-range habitat features for caribou in the context of range condition.

In addition the policy states that "all MNRF-led planning and decision-making will be consistent with meeting the policy objective." Moreover, "where MNRF does not have the primary legal responsibility for authorization of activities on Crown Land, or where it is a commenting agency for other Government processes, advice will be consistent with this policy."

The Range Management Policy also provides some guidance to assist proponents and the MNRF to determine if an activity requires a permit (or registration) under the *ESA*. The policy states that the MNRF will consider range condition, the category of habitat affected (i.e., if it is a high-use area, seasonal range or remaining area of range, as set out in the MNRF's 2013 policy, *General Habitat Description for the Forest-dwelling Woodland Caribou*) and activity details (e.g., timing, location, etc.) when determining whether an activity is likely to adversely affect caribou or their habitat under the *ESA*.

If the activity assessment suggests that the activity is not likely to comply with the *ESA*, a proponent may require a permit or authorization. However, the Range Management Policy does not identify a specific threshold at which a permit will be required. If an overall benefit permit is required, the Range Management Policy states that the range condition may inform how severe a predicted adverse effect may be and, therefore, the extent of the requirements a proponent will need to fulfil in order to achieve an overall benefit to caribou.

IMPLICATIONS OF THE DECISION

Lack of Direction on Disturbance Thresholds and Habitat Restoration

The Range Management Policy states that cumulative disturbance within ranges will be managed to support a self-sustaining caribou population; however, the policy does not describe any circumstances in which activities would not be allowed to proceed. For example, the policy does not commit to a management threshold for cumulative disturbance, such as the federal recovery strategy's recommendation to maintain or attain a minimum of 65 per cent of the area of each range as undisturbed habitat. While such a disturbance management threshold would not necessarily guarantee caribou persistence within a range, it would provide a consistent and transparent decision-making tool for authorizing and planning activities that disturb caribou habitat.

Similarly, the Range Management Policy does not suggest that activities may not be authorized to proceed in ranges that have been deemed insufficient to sustain caribou. In fact, the MNRF's Integrated Range Assessment Reports state that "caribou ranges that are assessed as uncertain or insufficient to sustain caribou should not be interpreted as policy direction to stop sustainable resource management."

Moreover, the policy does not acknowledge the possibility of denying an *ESA* permit for a given activity, but simply suggests that greater efforts may be needed to achieve an overall benefit where range condition is insufficient.

Although the draft Range Management Policy stated that "improving" range condition should be a priority and that proactive improvement may be required in some circumstances, the final policy does not discuss the need for habitat restoration in ranges that are insufficient to support a self-sustaining caribou population.

Despite a stated goal of "moving towards a sufficient range condition in all caribou ranges in Ontario," the decision-making process set out in this policy suggests that, in effect, mitigation of adverse effects – not prevention or remediation – will more likely be the ultimate outcome of this policy. Unfortunately, given caribou's sensitivity to disturbance, the mere mitigation of adverse effects is likely insufficient to ensure the species' persistence across the continuous distribution.

Limited Applicability of the Range Management Policy

The Range Management Policy discusses human-caused disturbance to caribou habitat in a general sense, but it does not specifically identify or discuss the activities that constitute or cause disturbance, or list those that fall within the MNRF's regulatory authority. In fact, the MNRF appears to have limited authority over many activities that affect caribou. For example, the MNRF is the primary approval authority for forestry, oil and gas, and aggregate activities; however, most infrastructure and development activities (e.g., pipelines, mining and minerals, transportation, electricity generation and transmission) are regulated by other ministries or agencies that may or may not seek out (or listen to) the MNRF's input. The MNRF can only ensure that the Range Management Policy is applied to these activities that affect caribou if the activity requires an MNRF approval (e.g., under the *Public Lands Act*, the *Fish and Wildlife Conservation Act, 1997* or the *ESA*).

Moreover, several activities that adversely affect caribou qualify for permit exemptions under the *ESA*, including early exploration mining. In addition, many types of development and infrastructure projects (e.g., transportation, advanced mining exploration), as well as forestry operations, may be eligible for time-limited exemptions. Proponents of exempt activities must follow rules set out in O. Reg. 242/08 (the General regulation made under the *ESA*), and are not subject to project-specific conditions. As a result, activities that qualify for *ESA* exemptions will not be directly subject to the Range Management Policy unless other MNRF-led approvals are required.

Finally, the Range Management Policy does not explicitly discuss how activities within caribou ranges that fall entirely outside of the ministry's authority will be dealt with by the MNRF. The policy merely states that the policy will constitute the framework within which the MNRF will provide "advice" where it is not the authorizing agency. In circumstances where the ministry has no regulatory authority, the extent to which caribou range condition is

considered in decision making will ultimately be at the discretion of the relevant approval authority, regardless of any of the MNRF's collaboration efforts.

ECO COMMENT

The MNRF's goal for caribou management is to maintain or move toward a "sufficient" range condition in all caribou ranges in Ontario. Key to achieving this goal is the limitation of human-caused disturbances in the province's 14 caribou ranges. Unfortunately, the ministry's Range Management Policy does not provide the clear and detailed guidance that is needed to ensure that the condition of all ranges will be sufficient to sustain caribou over the long term. Put simply, it does not say if and when the Ontario government will ever say no to activities that adversely affect caribou habitat. It has now been almost a decade since caribou were listed under the *ESA*, and the Ontario government has developed numerous policies for their protection and recovery – but caribou are arguably in the same uncertain position of risk and habitat loss as before any of this started.

The MNRF's failure to set explicit limits on disturbance is troubling. For example, the ministry's Range Management Policy does not expressly acknowledge the *minimum* 65 per cent undisturbed habitat threshold identified by Environment Canada, which would provide just a 60 per cent chance that caribou populations will be self-sustaining. These are odds not much better than a coin toss.

The ECO warned five years ago that the Ontario government's 2009 Caribou Conservation Plan conferred little or no concrete responsibilities to ministries beyond the MNRF. The new Range Management Policy follows in the same path: it will likely only affect the limited range of development over which the MNRF has actual regulatory authority. Indeed, the MNRF providing mere "advice" to other ministries and agencies will not be an effective approach to maintaining and improving caribou range condition.

It is not apparent that the MNRF has the will and, in some cases, the ability to prevent activities that would further threaten the condition of caribou ranges. The shortcomings of the Range Management Policy cast doubt on the Ontario government's commitment to achieving its caribou conservation goal. The harsh reality is that there is limited compatibility between caribou and the disturbance caused by such common development and resource management activities as forest operations, mining and transportation projects. As development pressures and the effects of climate change continue to mount in northern Ontario, the provincial government must make some difficult decisions about caribou habitat. If the Ontario government actually intends to support the long-term survival of caribou, there will be circumstances in which the maintenance and improvement of caribou ranges will have to take priority over other interests. The ECO urges the MNRF to prohibit additional anthropogenic disturbance in caribou ranges, when necessary.

The MNRF's recent efforts to monitor caribou and develop baseline information are one cause for optimism. The scale and complexity of the work undertaken to complete the integrated range assessments is almost without precedent in the MNRF's history of wildlife management. The ECO encourages the ministry to continue these efforts through ongoing caribou monitoring and regular reviews of its integrated range assessments. Because the Ontario government has not opted to take a precautionary approach to protecting caribou habitat, ongoing and comprehensive monitoring will be of critical importance as the MNRF implements the Range Management Policy. Given the government's commitment to undertake an adaptive management approach, one hopes that this wealth of information will be applied to decision making that protects and recovers caribou.

For a more detailed review of this decision, please refer to Section 1.3.2 of the Supplement to this Annual Report.

Comments from the MNRF

The majority of resource management and development activities in caribou distribution require some type of authorization by MNRF.

When reviewing authorizations, MNRF will consider the principles of the Range Management Policy (RMP), which includes managing the amount of cumulative disturbance in a range in a way that maintains or moves towards a self-sustaining caribou population. The objective of the RMP will be met through the application of this principle while also considering the habitat amount and arrangement, as well as the sub-range habitat features when making resource management decisions.

The RMP draws from Environment Canada's model that predicts the likelihood of persistence of a given caribou population relative to the amount of cumulative disturbance within a range. The policy requires that this model or an equivalent be used when estimating the likelihood of caribou persistence within a range.

Application of the RMP will integrate range condition into the Activity Review and Assessment process for caribou. Range condition informs the relative tolerance of the range to alteration and the risk a particular activity would pose for caribou. Determining whether a proposed activity will damage or destroy habitat is done on a species-by-species, case-by-case basis, consistent with *Policy Guidance on Harm and Harass under the Endangered Species Act* (MNRF 2014) and *Categorizing and Protecting Habitat under the Endangered Species Act* (MNR 2012).

5.5 New Rules for Milkweed: Monarchs get a Boost

Decline of the Monarch

The monarch butterfly (*Danaus plexippus*) is a well-known and readily recognized summer resident of Ontario. Its large, bright orange wings, with their striking black borders and rows of white spots, are a familiar sight in city gardens and along country roads. But the monarch is more than just an attractive summer icon; it is a major food source for several species of birds and invertebrates and a unique pollinator that provides long-distance pollen transport during the course of its annual migration. This migration is in itself an amazing phenomenon: it requires several generations, covers thousands of kilometers from Mexico to Canada, and is still not completely understood by scientists.

Unfortunately, this fascinating insect's numbers are dropping, not just in Ontario, where it was listed as a species of special concern in 2004, but across its entire North American range. As Figure 5.5.1 shows, the area occupied by monarchs during the over-wintering season in Mexico has been decreasing steadily since data were first collected in 1994. Since most scientists believe that all of the eastern North American monarchs over-winter in the same area every year, these figures are a good proxy for the size of the total population. The data suggest that over-wintering eastern monarch numbers have declined by 91 per cent over the past 20 years, with the numbers in the winter of 2013–2014 being the lowest ever recorded.

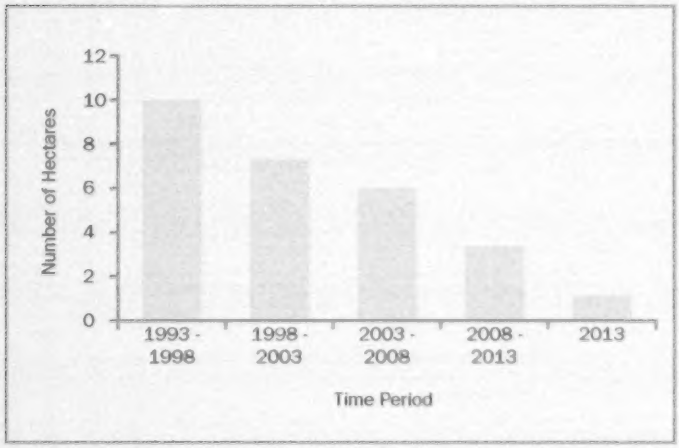


Figure 5.5.1. Forest surface area occupied by monarch butterfly colonies in Mexico (1993-2014).
Note: Except for 2013, forest surface areas are five-year averages. (Figure based on data published in: Forest Surface Occupied by Monarch Butterfly Hibernation Colonies in December 2013, Rendón-Salinas, E. and Tavera-Alonso, G., 2014.)

The monarch's decline has several causes, but one of the most important is the widespread reduction in the number of milkweed plants (*Asclepias spp.*) in parts of North America. Milkweed species are the sole food source of the larvae (caterpillars) of the monarch. Accordingly, if milkweed numbers are low, the concentration of butterfly eggs per remaining plant increases. The resulting increased competition for food reduces the caterpillar survival rate and, ultimately, the overall size of the butterfly population. One recent study estimates that milkweed plants in the American mid-west, the primary breeding ground for migrating monarchs, have declined by 58 per cent from 1999 to 2010, due largely to increased herbicide use and land use changes.

Ontario's milkweed habitat is also very important. The monarchs that make it back to Ontario each year reproduce three or four times during the summer, with the average lifespan of each short-lived summer generation being about one month. The last of the summer generations is the one that begins the long trek back to Mexico in the autumn of each year. Large Ontario milkweed populations can help ensure that monarch populations are bolstered over the summer months, off setting at least some of the losses the monarchs will experience during migration and over-wintering.

An Ontario Government Decision to Encourage Monarch-Friendly Habitat

In Ontario, weeds can be designated as "noxious" under the *Weed Control Act*. The purpose of this law is to reduce the number of unwanted plants that negatively affect agriculture and horticulture, harbour plant diseases, and/or poison or harm livestock. To this end, it prohibits the planting or depositing of "noxious weeds" anywhere in the province. The *Weed Control Act* also requires Ontario landowners to destroy all noxious weeds and their seeds unless they are sufficiently far from any agricultural or horticultural lands.

In May 2014, the Ministry of Agriculture, Food and Rural Affairs (OMAFRA) removed milkweed from its list of noxious weeds and added dog-strangling vine (*Vincetoxicum rossicum*) and black dog-strangling vine (*Vincetoxicum nigrum*). Removing the milkweed species from the noxious weeds list reflects, among other things, an effort by the ministry to support the recovery of monarch populations. The two newly listed dog-strangling vine species also affect monarchs, but in a negative manner; they are in the same family as milkweed (*Asclepiedaceae*), and monarchs are often deceived into laying their eggs on their leaves. The monarch caterpillar is not adequately sustained by the plant and can die before transforming into a butterfly. Dog-strangling vine and black dog-strangling vine are both non-native, invasive, and aggressive plants. These two plants can overtake native plants in natural settings.

OTHER REVISIONS TO THE NOXIOUS WEEDS LIST

In 2014, the Ministry of Agriculture, Food and Rural Affairs (OMAFRA) removed 10 species from its list of noxious weeds and added 11 others. These changes were reported in three separate decision notices posted on the Environmental Registry (#012-1204, #012-1205 and #012-2634). In addition to milkweed, other species delisted included: wild carrot, goat's-beard, Johnson grass, yellow rocket, tuberous vetchling, black-seeded proso millet, and three thistle species. These species can be managed on agricultural lands using modern farming methods. Each delisted plant also provides food and/or habitat for many different species, including pollinators.

The most important additions to the list by the OMAFRA were two species of dog-strangling vine, considered to be highly invasive. The ministry also added nine other species to the list, all of which are considered invasive and/or difficult to control including: smooth bedstraw, wild chervil, common crupina, jointed goatgrass, kudzu, wild parsnip, serrated tussock, tansy ragwort, and woolly cupgrass.

IMPLICATIONS OF THE DECISION

The *Weed Control Act*'s prohibition on planting milkweed and the requirement to eradicate it anywhere near farms has almost certainly had a negative impact on monarch populations. As the ECO has previously pointed out, it is

counter-productive to designate a plant as a noxious weed if it is the sole food source of the larvae of a species at risk. Clearing agricultural fields of milkweed in the course of typical farming practices constitutes a serious loss of habitat in itself; the requirement to eradicate milkweed from any place close to agricultural or horticultural activities has only compounded this loss.

Now that rural landowners are no longer required to destroy milkweed, Ontario's habitat for monarch butterflies should gradually increase. Moreover, it is now legal to plant milkweed in all parts of Ontario. Some Ontario residents had already begun to grow milkweed in their gardens in response to media reports about the decline in monarch populations. Until this regulatory change was made, these individuals were technically breaking the law. To reduce potential conflicts with agriculture, however, the OMAFRA recommends that people in agricultural areas who wish to grow milkweed choose a species, such as swamp milkweed, that is innocuous to agriculture.

Finally, the designation of dog-strangling vine and black dog-strangling vine as noxious weeds should help limit the spread of these invasive plants by raising awareness of those species within rural Ontario, leading landowners to better identify the invaders. Landowners with properties close to agricultural or horticultural lands are now required to remove these two dog-strangling vine species from their properties, and government inspectors have the necessary authority to enforce this requirement. Given that these species act as a destructive decoy to egg-laying monarchs, this government decision is also likely to have positive implications for the monarch's future.

ECO COMMENT

The OMAFRA's decision to no longer require the destruction of milkweed is a positive contribution to the conservation of the monarch butterfly. Allowing milkweed to grow in this part of the monarch's breeding grounds will help the overall effort to reverse the decline of this at-risk migratory species. The monarch's life cycle, which sees it travel each year between Mexico, the United States and Canada, necessitates a collective effort spanning national borders.

Photo credit - R. A. Nonenmacher (left)

However, this decision does raise some broader questions as to the nature and value of a "noxious weeds list." Weeds are, by common definition, plants perceived to be a nuisance or a threat to something else that is valued. In the past, the *Weed Control Act* has narrowly focused on controlling plants that may create problems for farmers. However, as in the case of milkweed, many of these plants have significant ecological roles to play. From a policy perspective, determining whether a plant's contribution to a particular managed or natural ecosystem is negative or beneficial – or something in between – is a balancing act of competing factors, interests and priorities. This decision seems to have struck the appropriate balance; the ECO encourages the ministry to continue with this balanced and ecological approach in future assessments of whether or not a plant should be included on the list of noxious weeds.

Finally, this proposal elicited an outpouring of public interest and support; every one of the 1,100 comments supported delisting milkweed as a noxious weed. The ECO is pleased that the OMAFRA chose to post these regulatory amendments on the Environmental Registry for public comment. However, the *Weed Control Act* is not prescribed under the *Environmental Bill of Rights, 1993* (*EBR*) for public consultation; accordingly, there is no assurance that this type of public consultation will occur in the future. The *Weed Control Act* should be prescribed under the *EBR*, so that the public is guaranteed the right to comment on future changes to this Act, its regulation and, in particular, changes to the listing of noxious weeds.

For a more detailed review of this decision, please refer to Section 1.1.2 of the Supplement to this Annual Report.

Comments from the OMAFRA

The recent changes to the schedule of noxious weeds under the Weed Control Act help support the monarch butterfly population. Removing milkweed from the schedule of noxious weeds helps ensure that this important habitat and food source for the monarch butterfly is allowed to thrive. Adding dog-strangling vine and black dog-strangling vine to the list is also important – they are aggressive, invasive plants that can interrupt the monarch butterfly's life cycle and harm biodiversity. Since the time that milkweed was first added to the schedule of noxious weeds, there are now more management options for farmers to deal with common milkweed in agricultural fields. These changes to the schedule of noxious weeds support important government initiatives related to biodiversity and the environment, such as the commitments made in Biodiversity: It's in Our Nature, Ontario Government Plan to Conserve Biodiversity, 2012–2020.

Appendix A

2014/2015 Annual Report Recommendations

RECOMMENDATION 1

1.2.1 The Environmental Registry: Ripe for an Overhaul

The ECO recommends that the MOECC invest in an overhaul of the Environmental Registry's technical platform, in keeping with the broader Open Government initiative.

RECOMMENDATION 2

2.4 A New Regulation for Greenhouse Wastewater

The ECO recommends that the MOECC report annually on its progress to ensure greenhouse wastewater discharges meet Provincial Water Quality Objectives, as part of Ontario's implementation plan towards the Lake Erie phosphorus reduction goal announced in 2015.

RECOMMENDATION 3

2.5 Fatal Attraction: When Birds Hit Buildings

The ECO recommends that the MOECC publicly clarify how it will regulate reflected light from buildings to protect birds, now that an Ontario court has ruled that it is a contaminant under the *Environmental Protection Act*.

RECOMMENDATION 4

3.3 A Drop in the Bucket: Water-Taking Charge Falls Short of Recovering Costs

The ECO recommends that the MOECC increase the water-taking charge and expand its scope to apply to other water users, with a goal of recovering the full cost of the ministry's water management responsibilities.

RECOMMENDATION 5

4.2 Planning Protected Areas for Ecological Integrity

The ECO recommends that the MNRF establish a dedicated annual fund and strategic priorities for ecological restoration in protected areas.

RECOMMENDATION 6

4.4 Going, Going, Gone: Land Acquisition Programs

The ECO recommends that the MNRF resurrect a dedicated annual fund and strategic priorities for land acquisition for protected areas.

Appendix B
Financial Statement

Environmental Commissioner of Ontario

Commissaire à l'environnement de l'Ontario

Responsibility for Financial Reporting

The accompanying financial statements of the Office of the Environmental Commissioner have been prepared in accordance with the accounting policies described in Note 2 of the financial statements, and are the responsibility of management. The financial statements have been properly prepared within reasonable limits of materiality and in light of information available up to October 1, 2015.

Management is responsible for the integrity of the financial statements and maintains a system of internal controls designed to provide reasonable assurance that the assets are safeguarded and that reliable financial information is available on a timely basis. The system includes formal policies and procedures and an organizational structure that provides for appropriate delegation of authority and segregation of responsibilities.

The financial statements have been audited by the Office of the Auditor General of Ontario. The Auditor General's responsibility is to express an opinion on whether the financial statements are prepared in accordance with the accounting principles described in Note 2 to the financial statements. The Independent Auditor's Report, which appears on the following page, outlines the scope of the Auditor's examination and opinion.

On behalf of Management:

Jo-Anne MacKinnon
Co-ordinator, HR/Finance/Administration
October 1, 2015

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Office of the Environmental Commissioner

Statement of Expenditure
For the Year Ended March 31, 2015

	Budget (Note 6) $	2015 $	2014 $
Salaries and wages	2,176,100	2,116,857	2,045,697
Employee benefits (Note 4)	500,500	416,019	461,520
Transportation and communication	107,900	92,715	97,373
Services	1,005,700	1,093,277	1,053,155
Supplies	70,500	80,953	51,265
	3,860,700	3,799,821	3,709,010

Commitments (Note 5)

See accompanying notes to financial statement.

Approved by:

Acting Environmental Commissioner

Office of the Environmental Commissioner

Notes to Financial Statement
March 31, 2015

1. Background

The Office of the Environmental Commissioner (Office) commenced operation May 30, 1994. The Environmental Commissioner is an independent officer of the Legislative Assembly of Ontario, and promotes the values, goals and purposes of the *Environmental Bill of Rights, 1993* (*EBR*) to improve the quality of Ontario's natural environment. The Environmental Commissioner also monitors and reports on the application of the *EBR*, participation in the EBR, and reviews government accountability for environmental decision making.

2. Significant Accounting Policies

BASIS OF ACCOUNTING

The Office, as part of the Legislative Assembly Fund, follows the modified cash basis of accounting which allows an additional 30 days to pay for expenditures incurred during the year just ended. This differs from Canadian public sector accounting standards in that for example, under the modified cash basis of accounting liabilities incurred but unpaid within 30 days of the year end are not recorded until paid, and expenditures for assets such as computers and office furnishings are expensed in the year of acquisition rather than recorded as capital assets and amortized over their useful lives.

3. Expenditures

Expenditures are paid out of monies appropriated by the Legislative Assembly of Ontario. These monies are part of the Legislative Assembly Fund. Expenditures are reported net of recoverable sales tax which is recovered by the Office of the Assembly on the Office's behalf

Certain administrative services are provided by the Office of the Assembly without charge.

4. Pension Plan and Post-retirement Benefits

The Office's permanent employees (and non-permanent employees who elect to participate) participate in the Public Service Pension Fund (PSPF) which is a defined benefit pension plan for employees of the Province and many provincial agencies. The Province of Ontario, which is the sole sponsor of the PSPF, determines the Office's annual payments to the fund. As the sponsor is responsible for ensuring that the pension funds are financially viable, any surpluses or unfunded liabilities arising from statutory actuarial funding valuations are not assets or obligations of the Office. The Office's required annual payments of $167,000 (2014 - $149,000), are included in employee benefits expense.

The cost of post-retirement non-pension benefits were paid by Treasury Board Secretariat and are not included in the statement of expenditure.

Office of the Environmental Commissioner

Notes to Financial Statement
March 31, 2015

5. Lease Commitments

The Office has a lease agreement with its landlord for its current premises expiring on February 28, 2018. The minimum lease payments for the remaining term of the lease are as follows:

	$
2015/16	141,800
2016/17	141,800
2017/18	130,000
	413,600

The Office is committed to pay its proportionate share of realty taxes and operating expenses for the premises amounting to approximately $111,000 during 2014.

6. Budgeted Figures

Budgeted figures were prepared by the Office and approved by the Board of Internal Economy – an all-party legislative committee.

Abbreviations

Abbreviation	Meaning	Abbreviation	Meaning
AOC	Area of Concern	MGCS	Ministry of Government and Consumer Services
BMP	Best Management Practice	MEDEI	Ministry of Economic Development, Employment and Infrastructure
COA	Canada–Ontario Agreement on Great Lakes Water Quality and Ecosystem Health	MMAH	Ministry of Municipal Affairs and Housing
EA	Environmental Assessment	MNDM	Ministry of Northern Development and Mines
EAA	*Environmental Assessment Act*	MNRF	Ministry of Natural Resources and Forestry
EASR	Environmental Activity and Sector Registry	MOECC	Ministry of the Environment and Climate Change
EBR	*Environmental Bill of Rights, 1993*	MOHLTC	Ministry of Health and Long-Term Care
ECA	Environmental Compliance Approval	MOL	Ministry of Labour
EDU	Ministry of Education	MTCS	Ministry of Tourism, Culture and Sport
ELA	Experimental Lakes Area	MTO	Ministry of Transportation
ENG	Ministry of Energy	*NMA*	*Nutrient Management Act, 2002*
EPA	*Environmental Protection Act*	NPRI	National Pollutant Release Inventory
ERT	Environmental Review Tribunal	OMAFRA	Ontario Ministry of Agriculture, Food and Rural Affairs
ESA	*Endangered Species Act, 2007*	*OWRA*	*Ontario Water Resources Act*
FLAP	Fatal Light Awareness Program	PCB(s)	polychlorinated biphenyl(s)
FWCA	*Fish and Wildlife Conservation Act, 1997*	ppb	parts per billion
GLWQA	Great Lakes Water Quality Agreement	*PPCRA*	*Provincial Parks and Conservation Reserves Act, 2006*
GNF	Greenhouse Nutrient Feedwater	*PPS*	*Provincial Policy Statement, 2014*
IUCN	International Union for the Conservation of Nature	PTTW	Permit to Take Water
LRIA	*Lakes and Rivers Improvement Act*	RASC	Royal Astronomical Society of Canada
LD50	lethal dose (for 50 per cent of a population)	SEV	Statement of Environmental Values
MW	Megawatts	*TRA*	*Toxics Reduction Act, 2009*
MAA	Ministry of Aboriginal Affairs	WMU	wildlife management unit

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